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COMPUTERWORLD

Good help doesn't come cheap
Users may be surprised by the amount of money companies spend on help desk support:

Average number of calls per month	**3,958**
Average cost of a support call	**x $20.26**
Average monthly help desk cost	**= $80,189**

Base: 1,100 respondents at companies with more than 500 employees

Source: Help Desk Institute, Colorado Springs

Stress rattles 'help!' desks

By Julia King

SAN FRANCISCO

Linda Howell used to go to her manager every four months to plead for a reprieve. She couldn't take it anymore. Her nerves were fried. She was going insane.

She needed to get off the help desk.

Today, Howell manages the Citgo Corp. help desk she once helped staff, but she has not forgotten what it was like to spend hour after hour answering calls from frustrated, impatient and frequently abusive users.

"You're supposed to know all the answers. You're tied to your desk. You're expected to know everything and do a lot with very little," Howell told attendees at last week's International Help Desk Conference held here. "The help desk is definitely not a laid-back environment."

And it's only getting worse.

The main reason is that more companies than ever before are deploying new and increasingly complex technologies, often with little or no end-user training. In addition to Microsoft Corp.'s Windows 95 operating system, more than 35 million new software packages are expected to ship by the end of 1996, according to International Data Corp. in Framingham, Mass.

What it all adds up to, experts agreed, is even higher stress levels for help desk workers. On average, they burn out after 18 months, and that time frame is shrinking fast. Burnout also translates into skyrocketing costs for corpora-

Stress, *page 16*

IBM toils on tools

Desktop object modeler a year off

By Craig Stedman

RENO, NEV.

Trying to erase the lingering stain from its failed AD/Cycle architecture, IBM plans to top off a new object-based application environment with a modeling tool that potential users said could help streamline development.

But the product — an object-based modeler code-named ObjChart — is still a good nine months away from shipping.

ObjChart will be able to generate object-oriented code directly from high-level application models created from a series of design templates, according to IBM executives, who revealed details of the plan at last week's Guide, Inc. user group conference here. IBM will provide some templates itself, and others may come from third-party vendors, including IBM partner Taligent, Inc.

Vendors such as IntelliCorp, Inc. in Mountain View, Calif., are already shipping object modeling tools, but analysts said IBM's plans appear to break new ground. That in itself is a significant change from the days of AD/Cycle, a

Object modeler, *page 159*

Visual Basic knockoff under way

By Craig Stedman and Elizabeth Heichler

RENO, NEV.

IBM is developing a Visual Basic clone to strike a blow at Microsoft Corp. while protecting its own traditional customer base. IBM executives last week said the copycat product should be robust and scalable enough to develop both desktop client and enterprise server applications.

Programmers will also be able to use IBM's Visual Basic look-alike to write stored procedures that could be ported across the different versions of IBM's DB2 database, according to company officials at last week's Guide, Inc. user group conference here.

"A lot of our customers are saying [Visual Basic] ain't a toy for them anymore," said Eric Bush, manager of enterprisewide application development strategy at IBM. "It's worked its way into being a mainstream language."

IBM's version of the widely used Microsoft-developed language will be introduced in the spring and should ship this summer, said Steve Mills, general manager of

Visual Basic, *page 159*

'Look and feel' reversal reignites copyright fight

By William Brandel

In a decision that took the software industry by surprise last week, a federal appellate court overturned a lower court ruling that had given Lotus Development Corp. a victory in its "look and feel" copyright infringement lawsuit against Borland International, Inc.

The ruling could serve as a stay of execution for Borland, which would be hard-pressed to pay the estimated $100 million in damages sought by Lotus.

The finding is significant for the software industry, which has been riddled with infringement lawsuits due to the ambiguities in copyright law. Developers had hoped the resolution of the Lotus case would provide clear rules on how software technology can be protected by copyright.

Late Thursday, the U.S. 1st Circuit Court of Appeals in Boston ruled that the interface of Lotus' 1-2-3 spreadsheet is "uncopyrightable subject matter." Lotus sued Borland in 1990, charging that the execution of commands in Borland's Quattro Pro menu system copied the look and feel of the 1-2-3 interface.

Quattro Pro was sold to Novell, Inc. last summer.

Developers said this latest ruling will reignite the debate over what protections they have under

Look and feel, *page 15*

RISC servers under PRESSURE

Users are increasingly replacing low-end RISC servers with PCs. Find out how RISC vendors are responding and what benefits RISC/Unix still offers.

See the CW GUIDE on page 118.

Rdb makeover on track

Rdb catches up

The following is a sample of Oracle products expected to support Rdb within 12 months

Product	Function
Trace	Database administration
Expert	Database administration
CDE 2	Application development
SQLNet	Connectivity

By Kim S. Nash and Neal Weinberg

A release of the Rdb database due late this year will contain several new features that will put it on the road to becoming more Oracle-like, officials at Oracle Corp. confirmed last week.

The Redwood Shores, Calif., company plans to soup up the database it bought from Digital Equipment Corp. last year as part of a so-called "convergence strategy" designed to meld Rdb with the Oracle7 database.

Engineers at Oracle's New England Development Center, as Digital's old Rdb group in Nashua, N.H., is now called, are working on a series of ports and enhancements. These include the following:

- Porting Rdb to Microsoft Corp.'s Win-

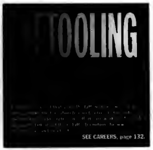
Rdb, *page 159*

WHO DO THE FORTUNE 500
CALL ON WHEN MOVING
TO THE PENTIUM™ PROCESSOR STANDARD?

A PUBLICATION OF IDG

What's Inside

March 13, 1995



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NEWS

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- Watch for a batch of **Ethernet switch** announcements at Networld/Interop '95 this month. *Page 4*
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DESKTOP COMPUTING

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WORKGROUP COMPUTING

- **Novell** and **Microsoft** make their pitches for **LAN-to-host connectivity**. *Pages 49 and 81*

How do you measure up?
How does your IS department compare with the Computerworld Premier 100? Fill out the Premier 100 survey, and we'll send you a free report showing how your operation compares with Premier 100 averages. Consolidated information from the surveys we collect may be published in a future Premier 100 issue. Send a request on company letterhead to Paul Gillin, Editor, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701 or E-mail to survey@cw.com.

ENTERPRISE NETWORKING

- The key benefits of **ATM networks** may be five years away, but many observers say the technology can help today. *Page 83*

LARGE SYSTEMS

- Users are hopeful but skeptical concerning the **Open Application Group**'s quest for application integration. *Page 89*

APPLICATION DEVELOPMENT

- Oracle touts its **groupware** strategy but admits that the real products needed to make it work are still under development. *Page 95*

MANAGEMENT

- A review of **James Champy**'s *Reengineering Management*. *Page 112*

IN DEPTH

- In an excerpt from her hot new book, *Surfing the Internet*, J. C. Herz describes a hostile territory for "newbie," or novice, 'net users. *Page 129*

MARKETPLACE

- Product offerings in the low-end **video server** market. *Page 148*

COMMENTARY

- **Charles Babcock** says IS staffs have to be ready to play a role in making telecommuting work for their companies. *Page 8*
- If you're sick of the legal circus surrounding Microsoft, check out **Bill Laberis**' solution. *Page 36*
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- **Martin Goetz** says the software industry can take initiative in the shadow of Microsoft. *Page 37*

COMING NEXT WEEK

INFORMATION WARFARE is no longer science fiction. The threats are real, and an attack on your corporation could be catastrophic. In next week's Leadership Series, consultant M. E. Kabay explains what IS management needs to know about information security.

Executive Briefing

Already-frazzled help desk staffs are being hammered even harder as companies deploy new technologies with little or no end-user training. Higher stress levels for help desk workers is one reason behind burnout rates of 18 months and contributes to **skyrocketing costs** for corporations, which lose a wealth of knowledge each time an experienced support agent walks off the job. *Cover 1*

US West Communications is putting hypertext browsers such as Mosaic on thousands of employee desktops as a means of dramatically changing how information traverses the organization. Yet even those closest to the year-old **Global Village** project admit the implications of this bold, companywide experiment have not been fully calculated. *Page 2*

IS executives have knocked re-engineering from the top of their priority lists for the first time in five years, according to a 1995 survey released last week by Computer Sciences Corp. Topping this year's list is **"aligning corporate and IS goals."** *Page 6*

Health care organizations are reluctant to invest in electronic medical **records systems** because of complexity, cost, security/privacy concerns and the lack of a standard data dictionary. *Page 4*

To help put more Americans into their own homes, the mortgage industry is using new expert systems to reduce needed documentation, provide instant credit approvals and reduce the time and costs of processing mortgages. Passing those savings on could open up the market to thousands of buyers who previously had been shut out. *Management, page 101*

The business benefits of groupware may be waiting just beyond a major IS hurdle — getting employees to want to actually use the technology. *Page 12*

The 5th Wave *by* Rich Tennant

©RICHTENNANT
SQUAD ROOM

"IT'S THE BREAK WE'VE BEEN WAITING FOR, LIEUTENANT. THE THIEVES FIGURED OUT HOW TO TURN ON ONE OF THE STOLEN VIDEOCONFERENCING MONITORS."

US West champions internal internet

By Ellis Booker

How is a revolving door different from a corporation?

"Nobody needs a guideline for how to use a revolving door effectively," said Sherman Woo. "You approach it, you see the outside, you see what other people are doing . . . and everyone understands the goal."

Woo is director of Global Village, a highly unorthodox US West Communications, Inc. project aimed at sowing the seeds of "self-organization" within the Denver-based telecommunications company's 55,000-person workforce.

US West's Global Village *functions as a year-old general-purpose internal internet*

With the blessing of top management and information systems, Woo and two colleagues have spent 13 months quietly evangelizing voluntary use of the company's corporate-wide TCP/IP network as a medium for communication among departments and individuals.

Behind it all are two low-cost, platform-independent technologies: hypertext browsers such as Mosaic and hypertext transport protocol servers.

In effect, Woo and company are trying to promote an internal internetwork at US West that would function as an alternative to the usual corporate processes, which tend to be top-down, hierarchical and stiff.

"An internetwork like [this] lets everyone be visible, articulate the goals of organization and share," Woo explained. "This is about getting smart and getting more organized."

However, Woo's superiors, and even those closest to the year-old Global Village project, readily acknowledge that the potential benefits and implications of this bold experiment have not been fully thought out.

Yet there are some apparent ways in which Global Village might be used to enrich the work environment. Some examples include the following:

- Engineers could publish a World-Wide Web page about recent projects and create hypertext links to pages of colleagues doing similar work.
- Managers could create informal, on-line discussion forums about timely topics.
- Departments could publish on-line documentation to a wider audience of users.

In fact, this last application has already emerged. Tom Haffey, a systems administrator at US West's corporate data warehouse, has replaced a paper version of a Global Village user guide.

"Before, there was so much documentation to type up you were at least six weeks behind the release," Haffey said.

Now, with a HyperText Markup Language document devoted to the documentation, Haffey's 150 users can get the latest updates as soon as they are filed. "It's saved time, errors and expenses," he said. "It's been a lifesaver for us."

According to Woo, other applications such as interactive forms for discussions on the Web will come next. Also planned are forms-based interfaces into, for instance, corporate and departmental databases.

But worries that US West's interior internet will look like the wild and woolly public Internet are unfounded, Woo maintained. "We have guidelines for what it means to be a good US West employee," he said, noting that the resource is to be used for business purposes only.

Analysts agree that grassroots deployment suggests there will be more positive than negative outcomes.

"Sure, there's a benefit of uncontrolled activity," said Michael J. Kleeman, vice president at the San Francisco office of The Boston Consulting Group, Inc. "A distributed, networked organization is a vital organization. People can establish identities and relationships" in this environment.

The presence of such a freewheeling internal internet does not mean there is no place for a more structured groupware platform such as Notes, Woo said.

Rather, he said his approach is more cost-effective, simpler and actually better suited for some tasks — such as using an electronic bulletin board to reserve a conference room for a meeting — than an advanced groupware system. "We take pride that we're not spending oodles of money," he said.

"Every person we give a demo to [is asked] to teach two more people," said Woo, who so far has cycled 2,000 employees through his demonstration room in Denver. He estimates there are 5,000 to 8,000 users of the internal network already.

A new land

Separate from Global Village, US West will establish a corporate Web site on the Internet in a matter of weeks. Run by the company's marketing communications department, the page will greet visitors with the picture of a lake reflecting mountains. The caption will read "Welcome to the land of wide open thinking."

Prepackaged DCE software gives programmers a break

By Jean S. Bozman

■ Users will soon be able to turn to off-the-shelf software packages to jump-start their sputtering use of the Open Software Foundation's Distributed Computing Environment (DCE).

A flurry of new DCE-ready application tool kits and console packages will emerge in coming weeks, allowing users to build or buy applications that live on a distributed network (see story at right).

In addition, major client/server packaged applications from SAP America, Inc. and PeopleSoft, Inc. are about to gain built-in DCE support, executives from those firms said last week.

Without this increase in available software and tool kits, analysts and users said DCE could be bypassed as other emerging distributed technologies, such as object request brokers and message-oriented middleware products, gain broader acceptance.

While waiting for prepackaged DCE software, programmers have had to spend a year or more developing just one or two pilot DCE applications. Many became frustrated trying to tap into DCE's unified security and any-client-to-any-server connectivity. "The programmers shouldn't have to be concerned about all those low-level details," said one user piloting DCE projects at a large bank.

The DCE packages will let users build applications much more rapidly. "You don't have to worry about a lot of grungy details," said David Richardson, assistant to the director at the University of Michigan's Center for Information Technology Integration in Ann Arbor, Mich. "You don't have to manage as much, and you don't need to know quite as much about the internals of DCE to get the work done."

But some longtime DCE users are still wary of the performance and scalability of client/server applications with lots of built-in DCE code. Tsvi Gal, a senior vice president of information technology at Bank of America in Concord, Calif., is concerned about the overhead involved in using translation software that links client/server packages to DCE middleware.

"If you want to add DCE security to applications that are already on the desktop, then that's probably an easy and elegant way to do it," Gal said. "Nevertheless, if performance and scalability are what you're looking for, there's a question mark."

The coming wave of DCE-enabled applications and tool kits will be most welcomed by some early DCE users.

"The more I can buy and the less my people have to write, the better off I am," said one East Coast information systems manager who requested anonymity. He has been prototyping DCE applications for federal users.

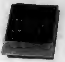
The IS manager said users would prefer to deal with DCE applications as a higher level of abstraction rather than "muck around" with the time-consuming process of coding the 400-plus DCE system calls.

Users agreed that the Open Software Foundation (OSF) lost precious time by crafting its own DCE code before letting vendors implement it. The OSF's principal backers, IBM, Hewlett-Packard Co. and Digital Equipment Corp., are expected to ensure that DCE will be widely used by preprogramming DCE code into off-the-shelf tool kits, database gateways, client/server applications and network and systems consoles.

Here, there, everywhere . . .

DCE packages will be showing up in several categories, including the following:

- Embedded DCE coding in programmer tool kits will be announced by Open Environment Corp. next week as part of its Encompass 2.1 release.
- Packaged applications. Although there are only a handful of these, including Dazel Corp.'s Dazel distributed printing application, major client/server vendors are poised to follow suit. SAP America, Inc. intends to announce support for DCE, including DCE remote procedure calls and messaging, a spokeswoman said.
- Computer Associates International, Inc., which already supports DCE security and timing in its CA-Unicenter product line, said last week it will extend that support to DCE file directories by early next year.
- PeopleSoft will announce later this month that its financial and human resources applications will support Connection/DCE from Open Horizon in Belmont, Calif. Open Horizon will, in turn, soon enhance Connection/DCE, which links existing Windows desktop applications with relational databases.
- Cell managers that run DCE networks from administrators' consoles are now available from The Santa Cruz Operation, which announced its version in November, and HAL Software Systems, which announced its DCE Cell Manager 1.1 last week.



Switching deluge to flood users with choices

By Laura DiDio and Stephen P. Klett Jr.

A tsunami of Ethernet switches will surface this week, cresting at the Networld/Interop '95 show in Las Vegas later this month. The tide will carry switches designed to run faster and fit more cheaply into every crack and crevice of an enterprise network, ultimately displacing many departmental routers.

The attractive price/performance points of the new crop of switches make them an appealing alternative to routers, observers said. Current per node switching prices range from $300 to $1,000. Departmental routers typically start at about $10,000.

Among the vendors unveiling switch product plans this week are Cabletron Systems, Inc., IBM, Hughes LAN Systems, Inc., Lannet Data Communications Ltd., Networth, Inc., Xedia Corp. and Onet Data Communication Technologies, Inc.

Additionally, Bay Networks, Inc. this week will introduce a stackable version of its Series 5000 switching hub. It will cost $160 per port and will compete with Cabletron's MMAC-8, sources at Bay said.

Cabletron will announce this week switching modules for its hubs as well as a stand-alone workgroup Ethernet switch [CW, Feb. 6]. Called the ESX-1320, the switch has 12 10M bit/sec. ports and a single 100M bit/sec. Fiber Distributed Data Interface port for connection to other switches or servers. The switch starts at $12,995.

Rochester, N.H.-based Cabletron also introduced a suite of six high-end and entry-level switching modules for the MMAC-Plus hub. All of the new modules are software upgradable to the company's forthcoming Secure Fast Packet Switching architecture, which is due out in the third quarter, said Trent Waterhouse, a Cabletron product marketing manager.

Growing smaller

Xedia, Hughes and IBM unveiled scaled-down versions of the ESX-1320, representing a growing trend toward smaller boxes as users look to improve bandwidth at the fringes of their networks. Xedia announced a version of its MADswitch this week that includes a 100M bit/sec. Ethernet port and six 10M bit/sec. ports.

The need for this type of smaller, stand-alone switching device is increasing because as users address bandwidth concerns in the backbone of their networks, they are starting to look at the network fringes where a 24-port, chassis-based switch may be overkill, said Kathryn Korostoff, president of Sage Research, Inc. in Natick, Mass.

Analysts said the latest spate of switch announcements augurs an acceleration of switching market momentum, most likely at the expense of routers, which are increasingly being pushed to the periphery of the network.

"By the Year 2000, switching will have replaced many routers, although not routing functionality, which will be incorporated into a variety of devices, including hubs and LAN and ATM switches," said Eric Hindin, a senior consultant at Strategic Networks Consulting, Inc. in Rockland, Mass.

Caveat emptor

Still, analysts cautioned that many of the offerings are not mature and lack basic functionality.

"From a technology standpoint, the switching vendors are at the 10-yard line with 90 yards to go, and the waters will get murkier as time goes on," Hindin said, referring to the difficulty in choosing a vendor.

Most switch vendors still have yet to deliver some much-needed features, he said, such as the ability to attach shared LANs to a switched port or support different speeds on the same switched port.

Despite the laundry list of "gotchas," users such as Ken Cieszynski, a staff engineer at United Airlines in Elk Grove Village, Ill., are rushing to install switches at an increasing rate.

United is deploying the switches for increased response time in leading-edge applications such as rerouting aircraft to avoid bad weather patterns.

Other companies such as Acadian Asset Management in Boston said smaller, stand-alone switches were ideal for their environments. The company is using two six-port, 10M bit/sec. Ethernet switches from Xedia in Wilmington, Mass., to help eliminate network time-outs and data transmission delays.

"Switching adds more bandwidth without requiring an upgrade of the underlying network infrastructure, which is too expensive for many smaller companies," said Raymond Mui, a vice president at Acadian. The Xedia switches enabled the company to get more data traffic over its existing cabling at a reasonable cost, Mui said.

Switches brew

[illegible]	[illegible]	[illegible]
Cabletron ESX-1320	12 10M bit/sec., one 100M bit/sec. FDDI	$19,995/June
Hughes LAN Systems Model 1700	16 10M bit/sec. (four can be configured as 100M bit/sec.)	$7,495/June
IBM EtherStreamer 8271-108	Eight 10M bit/sec., one 100M bit/sec.	$4,000/ September

Real-time ATM set for next century. See page 83.

Stacking it up

Bay Networks this week will take the wraps off a stackable version of its modular 5000 10Base-T Switching Hub. The company has also reorganized its SynOptics Optivity network management platforms and will introduce several new configurations.

The new so-called Distributed 5000 Switching Hub, set to ship next month, will boast a per-port price of just $160. Bay is positioning the device as "the MMAC-8 killer," a reference to a switching hub made by archrival Cabletron, said company insiders who requested anonymity.

Bay will deliver the Distributed 5000 in two versions. The first will be an unmanaged two-slot device that lists for $845, while the second will be a three-slot box that has built-in network management and is priced at $1,095. Both models will provide users with per-port configuration switching and full redundancy. A maximum of eight Distributed 5000s can be stacked, providing users with scalability from 12 to 288 ports.

Another source familiar with the product praised Bay's economies of scale, noting, "It's a good price point, and the integrated Rmon capability will be a boon to users since stand-alone Rmon probes cost $2,000 to $3,000 for each network segment, and Bay is giving it away free."

Network management

Additionally, the sources said, the Distributed 5000 requires only a single network management module to monitor and manage an entire stack of hubs. Optional redundant power supply and an optional integrated stack node router will also be available.

A 10Base-T port card for the Distributed 5000 costs $995; the network management module with full Remote Monitoring (Rmon) capabilities costs $2,195; and the optional redundant power supply slated to ship in June lists for $1,895. —*Laura DiDio*

Electronic medical records a long way off

By Mitch Betts

Movement toward computerized medical records, the grand dream of health care reformers, is slowing because of practical issues such as complexity, cost, security, confidentiality and lack of a standard data dictionary.

A soon-to-be-released survey found that despite the hoopla, three quarters of health care organizations are hesitant to invest in computerized patient records.

In fact, 58% are just in the thinking stage, and another 10% started a records project that has since been curtailed, according to a survey of 978 health care information systems professionals at a recent Healthcare Information and Management Systems Society conference.

In 1991, a blue-ribbon panel called for the conversion of paper medical charts, which are often illegible or missing, to a nationwide network of distributed databases. Each doctor would have on-line access to his patient's medical history, which could eliminate adverse drug interactions and duplicative testing as well as give researchers a mother lode of data.

But the dream is a long way off, IS managers said. In the survey, 37% said it will be a reality by the Year 2000, and another 40% said it will not happen for at least 10 years. Three quarters of the respondents expressed concerns about unauthorized access to the records.

Merger mania is forcing IS to work on the immediate, day-to-day issues of systems integration and put off electronic medical records to the next decade, lamented Ed Heller, president of the Computer-based Patient Record Institute, which has offices in Boston and Chicago.

Because the health care industry is consolidating into regional alliances of hospitals, clinics and physicians, the No. 1 priority for IS managers is integrating the disparate systems of multiple facilities, the survey found. Implementation of computerized patient records trailed as the No. 2 priority.

Heller said although it is true hospitals cannot afford to invest $50 million to create perfect medical records system in one whack, they could make incremental progress as they replace older systems.

"This is an area that is expensive and susceptible to cost-cutting, although in the long run that's like shooting yourself in the foot," observed Simon Cohn, clinical IS coordinator at Kaiser Permanente Health Plan, Inc. in Oakland, Calif.

Compaq LTE Elite 4/75CX
Compaq SmartStation

LAN goes out on a wire

By Laura DiDio

■ Wireless start-up RadioLAN, Inc. plans to put a decidedly new twist on a mature technology with a device that delivers full wire-speed Ethernet connectivity for the same price-per-node as a shared 10Base-T hub.

RadioLAN/10, slated to ship next month, is a 10M bit/sec. wireless peer-to-peer LAN that reportedly will provide users with all the functionality of a 10Base-T hub for about the same price — $350 per node — as current shared 10Base-T Ethernet hubs, said Mike Clair, chairman and founder.

What sets the RadioLAN/10 apart from other wireless offerings is that it is not limited by the same speed or operational and security constraints, said Skip MacAskill, an analyst at Gartner Group, Inc. in Amherst, N.H.

The new RadioLAN/10 provides users with full wire-speed 10M bit/sec. Ethernet connections throughout a building but does not require cables. It consists of these components: a network interface card for ISA, parallel port and PCMCIA machines, a lightweight, portable desktop radio transceiver unit and the 10Base-T RadioLink wireless operating system software.

"Spread-spectrum technology only offers speeds ranging from 1M bit/sec. to 3M bit/sec., and pricing ranges from $600 to well over $1,000. Infrared equipment does operate at 10M bit/sec. but requires uninterrupted line of sight for successful data transmissions, so it can't go between floors or walls," MacAskill said.

The RadioLAN/10 also provides a high level of security. Each unit comes with a unique company identification to lock out would-be intruders, Clair said. A Data Encryption Standard option will ship in December, he added.

RadioLink, the wireless operating system, is fully interoperable with Novell, Inc.'s NetWare, Microsoft Corp.'s Windows NT and Banyan Systems, Inc.'s Vines.

"Even the most nontechnical person can set up a RadioLAN/10 and have it up and running within minutes," Clair said. "It's also a big money-saver because if your business vacates the premises, there are no wires to take with you, [which saves] your investment in existing equipment."

The RadioLAN/10 device is designed for intrabuilding networks and has a range of 150 to 400 feet between nodes. Users can deploy two methods to increase the maximum 400-foot distance between nodes. Any wireless node can relay packets to out-of-range nodes, or wireless workgroups can connect across an existing LAN backbone.

Nick Lippis, president of Strategic Network Consulting in Rockland, Mass., characterized the RadioLAN offering as "unique and impressive" but cautioned that the technology is still unproved and lacks an installed base or even benchmark tests.

RadioLAN/10 offers users a much higher degree of mobility in terms of moving and relocating networked PCs around the office vs. other wireless solutions today. "I can't imagine you'll see these little radio towers cropping up every 400 feet. But it's still nice to know you can plop them into a conference room and have an instant 10Base-T-type of network," Lippis said.

Analysts agree that RadioLAN's technological expertise will be needed to combat the high degree of skepticism that still lingers among users about the integrity and security of wireless technologies.

Re-engineering focus slips

Spending on IS expected to rise

By Julia King

U.S. corporations will spend more money this year on information systems and less time re-engineering the business processes they automate.

And if 1995 is anything like the previous two years, more than 30% of companies will also replace their top IS executive with an outside recruit.

These are among the findings in a recent survey of more than 600 IS executives conducted by Computer Sciences Corp.'s (CSC) consulting unit in Cambridge, Mass.

The survey, released last week, also found the following:

- Most organizations plan to increase IS spending by an average of 4.6%, reversing a six-year cost-cutting trend.
- Client/server technology — especially systems to boost customer service levels — tops most companies' IS investment lists.
- Re-engineering is no longer a top priority. Companies today are preoccupied with aligning IS and business goals, then building cross-functional systems to meet those goals (see chart).

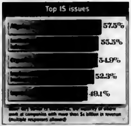
Top 3

U.S. companies rank customer service as their most critical business process, followed by order processing and delivery/logistics.

This year marks the first time since 1990 that re-engineering failed to garner one of the Top 2 slots on the consulting firm's annual ranking of critical IS management issues. The reason is that many companies are beyond redesigning business processes and have already begun to implement programs, CSC officials said.

But that is only half of the story, according to Harvey R. Shrednick, senior vice president of IS at Corning, Inc. in Corning, N.Y.

"At a lot of other companies, re-engineering just hasn't paid off, so the financial people and controllers are reining it in," Shrednick said.



Source: CSC Consulting Group, Cambridge, Mass.

Tops in banking

Meanwhile, a separate survey of 100 top banking executives, released last week by Ernst & Young, found re-engineering to be the No. 1 priority in that industry. Among other things, the survey found that banks will spend close to $20 billion on information technology in 1997, with the bulk of it aimed at improving customer service.

Bekins Van Lines Co. in Hillside, Ill., has tracked several of the CSC survey findings because it plans to implement a client/server system to improve customer service. The new system will allow large commercial customers and some 400 independent agents to quickly access shipping information.

"We're seeing an increased demand from customers wanting more access to information," said Kevin Cooper, vice president of IS. Electronic data interchange, which is batch-oriented, "just doesn't cut it anymore. Our customers are demanding real-time information," he added.

But contrary to CSC's optimistic IS budget findings, Bekins did not increase its 1995 IS spending plan to finance this year's IS implementations. Rather, cost savings from elsewhere in the company will pay for the new customer service system, Cooper said.

Conspicuously absent from the 1995 CSC list of IS executives' top priorities was cost containment, which is "just plain crazy," said Don Himes, who is in charge of setting IS direction at Aetna Life and Casualty Co. in Hartford, Conn.

"We're definitely and deliberately shrinking IS costs, and the IS budget is not increasing," Himes said. Since 1991, Aetna has reduced its annual IS budget by about $91 million, he said.

Microsoft shelves Ali Baba CD for now

By Stuart J. Johnston

Even before it was formally announced, Microsoft Corp. quietly put a hold on its proposed Ali Baba CD-ROM last week, partly because of the heartburn the idea was causing retailers.

However, the company said it may still release a CD such as Ali Baba — which was to have included a catalog of encrypted Microsoft applications along with Windows 95 — at a future date. Under this scheme, users could have bought Windows 95 and have had the option to call a telephone number to pay for "open sesame" keys to unencrypt one or more applications on the disk. They could have then installed the applications on their own hard disks.

Despite feedback from retailers who felt the disk threatened sales, Mike Losh, group manager of emerging channels at Microsoft, said their resistance played only a small part in the company's decision to hold off for now.

"It's new technology, and it's complicated enough that it could have been problematic to roll it out for the first go-around," Losh said referring to the release of Windows 95.

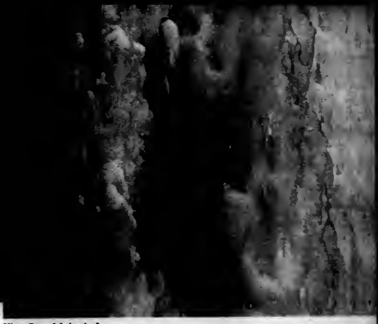
He also downplayed the concept that encrypted CD-ROM delivery of applications poses any serious threat to retail sales or that there is anything untoward about bundling applications on the same disk as Windows 95, as some competitors suggested.

Give it a chance

One user suggested that while the disk might have failed in the marketplace, he hated to see Microsoft back away from it because of pressure from competitors who might cry foul to the U.S. Department of Justice.

"It's much better to have it defeated in the market than to have it defeated by [the fear of] the government," said Duncan Davidson, vice president of Gemini Consulting, Inc. in San Francisco, an international management consulting company.

"The Faustian bargain is that once you let the government into your tent, they'll want to push their nose into everything," he said.



Telecommuting: The future is now

If the organization is getting flatter, it's also getting more spread out. Some people are working from home, on the road or from a neighborhood office center that spares them a long commute. Information systems managers will be called on to support these new work patterns.

Los Angeles will continue to be a testing ground for these changes. After the Northridge earthquake and the resulting collapse of the freeways, telecommuting there increased sharply.

Jack Nilles, author of *The Telecommunications-Transportation Trade-Off* and *Making Telecommuting Happen*, says the impetus toward telecommoting comes from companies that are willing to embrace an information-age management style. Los Angeles business managers are willing to relax their grip on workers' whereabouts, managing by results, he said at a recent talk at the Emerging Technology Executive Forum, a Los Angeles IS group.

Nilles says assembling workers at centralized points is a holdover from the industrial revolution when labor and materials had to be concentrated in factories. In his optimistic view, telecommuting increases worker productivity by 20%, improves worker morale and increases the rate of employee retention. Telecommuters also use less space in company offices. Within 11 months, these factors pay back the costs of training, laptops, modems and other equipment, he says.

Business managers are relaxing their grip on workers' whereabouts and managing by results instead.

Charles Babcock

Nancy Muehter, administrator of the telecommuting project at the Los Angeles Metropolitan Water District, also spoke at the forum. Muehter agrees telecommuting increases worker morale and rates of retention, but she says 20% productivity improvements are hard to prove. If a budget is based on such gains, the telecommuting program had better have a full-time administrator quantifying the results, she says. Her own position requires that she fulfill the duties of a project manager first and run the telecommuting program second.

The water district has 50 to 60 workers telecommuting an average of one day a week, making use of Compaq 486-based laptops, modems and home fax machines. Another 20 to 30 district workers would like to telecommute. Muehter's goal is to get 200 of the district's 2,000 employees to telecommute, a figure that helps the district meet Southern California's air quality regulations. Rule 1501, for example, requires all companies with 100 employees or more to plan a reduction in total worker trips to cut air pollution.

Much of the success of the water district program hinges on training workers. They get the exact same software on both their desktops and laptops. They have to be taught how to connect to the central office, access mainframe databases and maintain security.

"The benefits are not free. You have to spend some money to reap the rewards," Muehter notes.

Only two workers so far have been removed from the program because telecommuting led to problems in doing their jobs, she says. Another dropped out because he didn't like telecommuting. The early participants have been workers who were already computer users — lawyers, programmers and engineers.

Muehter says it isn't realistic to expect to save on office space as a result of telecommuting. Cutting back on space will mean some telecommuters will have to share an office, rotating which one goes to an office and which one stays home.

In these early efforts, one can see the work patterns of the future emerging in places like Los Angeles. Key staff members will be off-site but still connected to a central office, and it will be the job of IS to ensure the best possible connections to make it practically as good as being there.

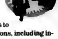
Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

News Shorts

Oracle development tools on tap

Oracle Corp. will unveil new application development tools today, along with plans to package some of its Cooperative Development Environment 2 tools — mainly code-generation tools such as Forms, Reports and Graphics. The idea is to create an offering that competes head-to-head with Sybase, Inc.'s PowerBuilder. A new graphical development product is also expected to be announced as part of the set. The whole kit and caboodle, which will be renamed, will be priced comparably with the $3,000 price tag on PowerBuilder's full-blown developer's license.

CIO switch at FTD



Former **Kmart Corp.** Chief Information Officer David M. Carlson has joined Southfield, Mich.-based **FTD**, the worldwide floral delivery network, as vice president of technology and network services. Meanwhile, Kmart continues to downsize its overall operations, including information systems, as part of an ongoing drive to cut costs, a spokeswoman said. Outsourcing is among the options under consideration, she added.

CeBIT gets PowerPC OS/2 demo

At the world's largest technology trade show, **CeBIT**, which was held in Hanover, Germany, last week, **IBM** demonstrated the latest beta version of OS/2 for the PowerPC, which is expected to ship this summer. A handful of independent software vendors, including Computer Associates International, Inc., Metaware, Inc., Pinnacle Technology, Inc. and Stardock Systems, were also on hand to show off versions of their software and developer's tools running under the PowerPC version of OS/2. Separately, IBM said last week it has licensed its microkernel to **Trusted Information Systems, Inc.** (TIS) in Glenwood, Md., for joint development of high-security operating systems on standard hardware. The result will be "trusted" systems based on the IBM/TIS microkernel that runs off-the-shelf DOS, Windows and Unix applications for government and commercial users.

Microsoft seeks to dismiss judge

Although the U.S. **Department of Justice** and **Microsoft** are united in urging the U.S. Court of Appeals in Washington to overturn a federal judge's rejection of their July 1994 antitrust settlement, Microsoft has gone one step further. Last week it sought to remove U.S. District Court Judge Stanley Sporkin from the case. Microsoft's filing claimed Sporkin has acquired a "personal bias" against the company by reading anonymous legal briefs and allegations in the 1992 book *Hard Drive*.

Multimedia training stays in-house

A majority of firms that use multimedia for training and development are developing courses internally instead of outsourcing such services, according to a study by **Omnitech Consulting Group, Inc.** in Chicago. The study, which polled 75 senior-level corporate educators, also found that most multimedia course development budgets were less than $500,000 last year, with no major decline expected in 1995. Separately, **Chipcom Corp.** in Southboro, Mass., **Ericsson Business Networks AB** in Stockholm and **IBM** in Research Triangle Park, N.C., have announced plans to jointly develop multimedia networking products. The trio will work together to develop products that allow today's LAN hubs and private branch exchanges to support real-time voice, video and data traffic.

HP plans storage products

Hewlett-Packard Co. is developing new RAID storage technology it said will support multiple levels of redundancy within a single disk array. New controller algorithms will automatically reassign data to different RAID levels depending on frequency of use, HP said. The HP AutoRAID technology is expected to ship this summer, according to the Palo Alto, Calif., company.

Office gear to get tighter links

Eighteen manufacturers of office equipment, computers and network services said they will form the **SmartOffice Consortium**. The group will develop a specification to link office machines such as copiers, printers, phones and fax machines with PCs and personal communicators. **IBM**, **Novell, Inc.**, **Canon, Inc.**, **Eastman Kodak Co.** and **Toshiba Corp.** are among the members.

SHORT TAKES **Microsoft** last week said it will submit to the Object Management Group a draft specification for distributed Object Linking and Embedding (OLE). The draft will describe how Microsoft will implement its OLE Component Object Model on top of the Distributed Computing Environment. . . . Separately, Dwayne Walker, former general manager of worldwide marketing and sales at Microsoft, has joined the board of directors at **QuickStart Technologies, Inc.**, a Newport Beach, Calif., provider of training and educational services to users of Microsoft products. . . . **Network General Corp.** last week unveiled a new version of its Expert Sniffer Network Analyzer to support Novell NetWare 4.x and Banyan Systems, Inc. Vines 5.5 protocols. . . . Bids passed the $7 billion mark in the **Federal Communications Commission** auction for broadband personal communications services licenses. Also last week, billionaire entrepreneur Craig McCaw dropped out of the bidding. . . . Pentium clone maker **NexGen, Inc.** in Milpitas, Calif., last week unwrapped a smaller, faster version of its Nx586 chip. NexGen also said that since the chip's launch last fall, it has signed on more than 100 customers. . . . Purchasers of **IBM PC Co.** servers will now get 90 days of technical support at no additional cost. In what it described as an effort to "take the hassle out of installing and setting up" PC server hardware and system software, the PC Co. last week announced its new PC Server Start Up Support program.

Compaq links PCs to management tools

By Jaikumar Vijayan
NEW YORK

In a major revamp of its corporate PC products, Compaq Computer Corp. last week announced more than 100 new configurations of its ProLinea and DeskPro models, and it lowered prices by up to 23% on some of its older business PCs.

Compaq used the product introduction — its biggest launch ever — to formally spell out its new "Intelligent Manageability" strategy, which is designed to bring more desktop management tools and features to networked PCs.

So far, Compaq has linked up with 10 vendors in its attempt to deliver capabilities such as inventory tracking, asset management and predictive failure analysis to desktop PCs. With Compaq, these vendors will define a specification that permits uniform access to inventory and asset information on desktop hardware.

According to Eckhard Pfieffer, Compaq's chief executive, the company's main focus on the desktop is to offer management tools — migrated down from servers — that will help reduce the cost of owning PCs.

For users, Compaq's new thrust will mean greater availability of desktop management tools and possibly faster implementation of a common desktop management interface. The new focus will also mean lower management costs as other vendors start to compete on manageability issues, analysts said.

"This is something that rings very close to our hearts. I think [desktop management tools] would be very helpful for us," said William Furman, director of information systems at Furman Foods, Inc. in Northumberland, Pa. The company now does asset management and tracking manually. It recently started widening its installed base and is looking for tools to help keep tabs on hardware.

Steve Borns/Compix

Compaq chief executive *Eckhard Pfieffer says the company will move its focus to desktop manageability*

Compaq's announcement comes at a time when inventories of about $2 billion and a rapidly aging corporate product line have threatened to slow the momentum that has propelled it to the top spot in the PC market.

The new products are engineered to take advantage of Compaq's bid to eventually move to a build-to-order manufacturing model, analysts said. For instance, the new systems share three basic form factors and common, mostly interchangeable, system boards around which different components are installed, depending on the configuration. This results in faster response to market and technology changes, said Kevin Bohren, vice president of desktop marketing at Compaq.

Standard features on the new systems include Peripheral Component Interconnect (PCI) local bus, a quad-speed CD-ROM and graphics capabilities. The new DeskPro, which is aimed at networked environments, also comes bundled with integrated network cards, Ethernet/PCI controllers on the system board and Intelligent Manageability. Prices start at about $1,999 for a ProLinea with a 75-MHz Pentium processor and $2,149 for a DeskPro based on the same processor.

Meanwhile, some vendors said the management capabilities Compaq is touting as new already exist.

"While others are still talking about it, we've had features like predictive failure analysis" for some time now, said Mitchell Medford, a server software brand manager at IBM PC Co.

IBM's NetFinity server management tool, which is available on IBM desktop PCs, already offers capabilities for tracking inventory and asset management, Medford added.

HP and AT&T release lower-cost PCs. See page 44.

Move to groupware sparks user resistance

By Elizabeth Heichler
BOSTON

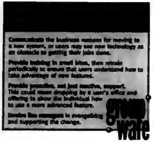
Before the business benefits of groupware can emerge within a company, employees must be willing to actually use the technology. And that can be the biggest stumbling block of all, said users attending the GroupWare '95 conference held here last week.

At World Bank in Washington, for example, a large-scale plan to move 10,000 users of Digital Equipment Corp.'s All-In-1 electronic mail package to its Teamlinks desktop groupware package ran into snags when many users balked at the change. One pilot group "nearly revolted," said Lesley Shneier, an information officer at the bank and a speaker at the conference.

"We're not paying enough attention to where the real costs are — to people," Shneier said. "The typical attitude has been, 'Put [new technology] on their desks and go away.' "

World Bank made its move to a groupware network to support an effort to decentralize the global development organization and broaden the organization's focus beyond its Washington headquarters.

The information systems department introduced the new technology to four divisions participating in pilot tests, but Shneier said that despite extensive training and on-site support, "the majority of staff remain reluctant to change to a new system."


Communicate the business reasons for moving to a new system, or users may see new technology as an obstacle to getting their jobs done.

Provide training in small bites, then retrain periodically to ensure that users understand how to take advantage of new features.

Provide proactive, not just reactive, support. This could mean dropping by a user's office and offering to show the individual how to use a more advanced feature.

Involve line managers in evangelizing and supporting the change.

One concern centered on changing job functions. The bank's professional staff will use the new desktop software to draft their own reports rather than dictating them or writing longhand drafts. But some object to performing work now done by secretaries, she said.

Introducing groupware enterprisewide is bound to be difficult, said Scott McCready, an analyst at IDC/Avante Technology, a Framingham, Mass.-based research company.

"I'm not convinced you can or should institutionalize groupware," he said. "Unless new technology makes a difference in people's daily lives, they don't want to be bothered with it."

Another reason users may not be receptive to groupware is that they have not been given a legitimate business rationale for using it, said Karen Moser, a senior analyst at Aberdeen Group in Boston.

World Bank's use of All-In-1 was intended to improve collaboration globally and streamline the process of producing reports that go through as many as 100 rewrites before they are finalized.

But the organization's employees were "saturated with new technology and didn't see its relevance to their work," Shneier said.

Keeping lines open

Other show attendees said problems with user acceptance of new technologies can be overcome by establishing mechanisms for user feedback.

During a workflow implementation project at the Pentagon, for instance, the IS staff recognized the importance of user feedback and set up a special E-mail box and voice-mail box to encourage responses, said a Defense Department official who asked to remain anonymous.

"We haven't created a culture that says to users that their feedback is important," said Dan Polito, vice president of NationsBank Corp. in Charlotte, N.C. "We need to make people feel that it's OK to say they don't like something."

Oracle touts groupware strategy. See page 99.

HP, CA tighten enterprise links, integrate key products

By Thomas Hoffman and Steve Moore

Aiming to simplify the management of multiple distributed operating systems, networks, databases and applications, Hewlett-Packard Co. and Computer Associates International, Inc. last week announced plans to integrate HP's OpenView network management framework and the CA-Unicenter systems management suite into a single product.

For users, the principal advantage of CA-Unicenter for OpenView will be its support of "real multiplatform management for NetWare, Windows, OS/2, Unix and mainframes," said John McConnell, president of McConnell Consulting Co. in Boulder, Colo.

But the initial release of CA-Unicenter for OpenView, which both vendors will begin shipping later this month at a starting price of $50,000, will offer limited functional integration such as security connections between OpenView and CA-Unicenter.

Greater appeal

Because much of the near-term integration will be at the graphical user interface level, analysts and users contend that tighter integration of the products is a must for users who want to fully leverage the robust capabilities of the market-leading packages.

The combination of OpenView and CA-Unicenter agents on each managed system "gathers a broader set of data than either product could independently," said Gordon MacKinney, HP's OpenView program manager. A enterprise management suite that goes beyond Simple Network Management Protocol support seems to hold appeal for users of both products.

"Today we have to use OpenView and Unicenter independently, and having them integrated will bring two different [management] categories into the same fold and make it easier for our technical people to maintain and use them," said Ed Wolff, group director of MIS at Brake Parts, Inc. in McHenry, Ill.

Yet one user of both OpenView and CA-Unicenter said his company would continue with its plans to replace CA-Unicenter with systems management products from Fourth Dimension Software, Inc. in Irvine, Calif.

"We'd like to use a common agent [for event detection], and instead we've got two agents that consume memory and cycles and increase the load on the managed environment," said a technical staff member at a telecommunications company in the Midwest.

The staff member, who asked not to be identified, said CA-Unicenter for OpenView lacks "a single shared database with a common schema used by each of the systems accessing it."

While OpenView runs off CA-Ingres, CA-Unicenter does not; instead, it houses systems management data under a flat-file structure. But CA-Unicenter and OpenView will run under CA-Ingres when the Islandia, N.Y., software giant bundles the database environment into its systems management suite free of charge by midyear, according to Yogesh Gupta, senior vice president of CA's product strategy.

Both vendors promised to continue enhancing their independent products, and that pledge is vital for CA-Unicenter customers who do not yet require network management capabilities but are looking for additional systems management hooks.

CA adds piece to systems management suite through alliance with BMC Software. See page 96.

Microsoft opens Win 95 to outside management

By Stuart J. Johnston

■ Under a deal announced last week by Microsoft Corp. officials, systems managers will be able to use third-party products to administer PCs running Windows 95.

The Redmond, Wash., company has granted royalty-free licenses for Windows source code to three independent developers: Express Systems, McAfee Associates, Inc. and Saber Software Corp. The deal will enable the developers to offer utilities that access features available through Windows 95's Systems Policy Editor, said Yusef Mehdi, product manager at Microsoft's Personal Systems Division.

There are roughly 50 functions that an administrator can manage using the Systems Policy Editor, Mehdi said.

For example, an administrator can impose specific systems policies determining user access rights, such as whether a user can share certain files on a hard disk with other users. The Systems Policy Editor can also hide from individual users some system features, such as icons for the Windows Control Panel or for security settings.

The agreement specifies that tools from the three companies will be able to administer those same 50 functions as well as any added by the vendors. That means that an administrator will be able to manage users' machines with the Systems Policy Editor or a tool from any of the three companies.

Stamp of approval

Several users and other vendors generally hailed the move.

"Anything that you can do to make administration easier is going to enhance Windows 95's [appeal]," said Hank Coleman, chief financial officer at Altoc Corp. in Dallas. The company's Southern Hospitality Systems unit develops and deploys Windows-based point-of-sale business software for hotels and restaurants.

Separately, Microsoft announced that within about 90 days after Windows 95 ships in August, the company will release an updated network client that supports Novell, Inc. NetWare 4.1 NetWare Directory Services (NDS). The NetWare client scheduled to ship with Windows 95 currently supports NetWare 3.x and 4.0.

Adding 4.1 NDS support will "allow you to create a directory independent of the server's location," Mehdi said. It will also enable Windows 95 to function with NetWare 4.1's single log-on facility, which eliminates the need to log on to each NetWare server individually.

'Net to reshape business

Forum attendees cite security as an obstacle

By Ellis Booker

■ **The Internet and on-line networks will spawn new models for the economy, business and culture.**

These were some of the heady topics discussed at last week's annual PC Forum in Phoenix.

As Esther Dyson, president of conference sponsor EDventure Holdings, Inc. in New York aptly stated, "Here we have competing business models rather than products."

Participants of the three-day conference were most interested in ways to make money in this new medium. And even if hard answers were not to be found, many attendees sensed the dawn of a new era.

"The energy of the industry has returned to what it was five or six years ago," said Stewart Gannes, publisher and chief executive officer of Books That Work in Palo Alto, Calif.

But Scott Cook, chairman of Intuit, Inc., encouraged realism, noting that changes in fundamental behaviors, such as how people pay bills, take a very long time.

Cook said Intuit's Quicken package has had an electronic payment facility since 1990, but less than 2% of its users pay bills this way.

"It's hard to get a whole culture to accept a new payment scheme," he said, adding that he did not believe any of the dozen or so proposed digital payment systems would be standard in three years.

Others said fussing over "models" was unnecessary. "I don't see much thought about the richness of the marketplace and the richness of the models that exist in the physical world," an attendee said.

Familiar issue

One oft-cited obstacle to vibrant electronic commerce is security: the safety of transactions and intellectual property completed in cyberspace. Here the debate transformed from the technical to the political.

Michael Nelson, special assistant for information technology at the White House, defended the administration's stance on encryption technology export controls. Eric Hughes, president of Open Financial Networks in Berkeley, Calif., countered by advocating that the National Security Agency provide its best encryption algorithms to commercial enterprises.

Those announcing solutions last week included Folio Corp. in Provo, Utah, with an architecture for distributing digital information, and Wave Systems Corp., with a decryption and metering chip.

Jerry Michalski, editor of "Release 1.0," a newsletter owned by EDventure Holdings, said he was less concerned with terrorists operating in secret than with the "ensuing chaos" as whole pieces of the economy escape the tax man.

Cook said chaos was a "fertile field" for government regulation, which often protects the status quo and stifles competition and innovation.

MCI Communications Corp. Chairman and CEO Bert Roberts insisted that the computer industry drop what he called its longtime "apolitical stance" and enter the debate about the future of the National Information Infrastructure. "There will be enormous opportunity for those who were involved in the process and biased the outcome," Roberts said.

Postal Service tries electronic deliveries

By Suruchi Mohan

In an attempt to keep up with its fleet-footed competitors, the U.S. Postal Service has teamed with router supplier Retix and Electro-Com Automation L.P. to build a wide-area network infrastructure to automate mail processing.

This infrastructure will "allow the U.S. Postal Service to offer electronic document services if it so chooses," said Jennifer Mitchell, an analyst at Dataquest, Inc. in San Jose, Calif. That could pose a challenge to document delivery companies such as DHL Worldwide Express and FedEx Corp.

Although the Postal Service has chosen not to use this network for electronic document delivery — opting instead to use it only for internal business — it is working to do just that with telecommunications companies.

Piece of the pie

In doing so, the Postal Service is underscoring its efforts to share revenue that has so far gone to the telecommunications or fast document delivery companies.

Next month, the Postal Service will begin beta-testing a project that calls for a pilot's certificate of training to be sent by the Federal Aviation Administration over telephone lines every time a flight is scheduled.

To date, this has been done using traditional mail, but the Postal Service is now using the telecommunications companies to send this information electronically. Although the Postal Service is seeking to merely break-even on this service, other players in the industry are definitely looking to make a a profit.

Lotus Development Corp.'s Network Notes endeavor with AT&T Corp. is a step in this direction. So far, electronic document delivery, typically fax, has generated revenue that has lined telecommunications coffers. But that is changing.

Joe Forgione, senior director of marketing and distribution at Lotus in Cambridge, Mass., said the business model for software companies is undergoing change, and the companies no longer rely solely on applications for profit.

Forgione refused to divulge details, but he did acknowledge that Lotus is sharing some of the revenue it is helping AT&T generate by using Network Notes, which essentially allows users to work together and send business documents to one another electronically. Both firms stand to gain by greater use of applications, he said.

No go

So far, attempts at electronic document delivery made by the Postal Service and document carriers have been unsuccessful, said Jennifer Mitchell, an analyst at Dataquest. The Postal Service's use of fax machines and the ZapMail offering from FedEx did not fly.

Partnering up

Generating new revenue was also the motivation behind the alliance between MCI Communications Corp. in Mclean, Va., and Delrina Corp. in Toronto.

"Software companies recognize that they produce software that allows electronic document transfer, so they are getting into alliances with telecommunications companies to share revenues," Mitchell said.

This also hurts document carriers such as DHL and FedEx, which cannot offer electronic document delivery or telecommunications services individually. Mitchell said she expects vertical integration between the document carriers and the software and telecommunications companies.

Wireless tech inches ahead at Mobile '95

By Michael Fitzgerald

This week's Mobile '95 show is expected to showcase several incremental advancements in mobile computing.

One of the most important advancements is also one of the smallest: IBM's unveiling of four PC Cards — three wireless modems and one wireless LAN adapter.

"These are significant because [they will] help drive costs down for wireless modems," said Andrew M. Seybold, editor in chief of the "Outlook on Computing and Communications" newsletter in Brookdale, Calif. The modems are the first wireless-enabled PC Cards in the U.S. and should also help reduce the hassle of having to tote around bricklike external modems and plugging them into mobile systems, he said.

Traveling tools

Out of ...	The following are also notebook users:
563 cellular phone users	14%
319 pager users	17%
444 executives	22%
68 sales professionals	18%
118 people who travel more than six days per month	36%
575 with household income over $50,000	20%

Source: The Yankee Group, Boston

Significant support

These peripherals also mark the first time one vendor has offered modems that support the four main wireless data networks: Circuit-switched cellular network, Ardis Co.'s Advanced Radio Data Information Service (ARDIS) network, the Cellular Digital Packet Data (CDPD) network and Ram Mobile Data USA L.P.'s Mobitex network.

IBM has one modem for ARDIS and one for Mobitex. It also has a combined CDPD/circuit-switched cellular modem. Each costs less than the external modems on the market today, with prices starting at $895.

For the cellular data market, "the dual-mode product could be really good for the next 12 to 18 months while all this infrastructure is being built out," said J. Gerry Purdy, editor in chief of "Mobile-Letter" in Stevens Creek, Calif.

At $445, IBM's wireless LAN adapter is the first sub-$500 wireless LAN PC Card. The product can transmit data at up to 400K bit/sec., which is considered fast for a wireless LAN, and comes bundled with Artisoft, Inc.'s LANtastic peer-to-peer network operating system.

Other products announced at the show include the following: SkyTel Corp. will enhance its SkyFax fax service to allow users to download faxes directly on a PC; Wayfarer Communications, Inc. will announce its new Enterprise Server development tool for connecting mobile users and disparate corporate databases; and Data Transmission Services, Inc., a subsidiary of RAM Broadcasting Corp. (co-owner with BellSouth Corp. of RAM Mobile Data), will introduce Zap-It, a wireless messaging service for fax, electronic mail, paging and other services.

Up, up and away

The number of people working out of their home at least part-time will hit 39.2 million this year, according to Link Resources Corp., a market researcher in New York. Link predicts that telecommuters will be the fastest growing segment, shooting up 20% from 7.7 million to 9.24 million.

Look and feel

CONTINUED FROM COVER 1

current intellectual copyright law.

For users, it could simply mean higher software costs and less innovative products to choose from.

"It's a two-edged sword," said David Blohm, president of ThinkingWorks, Inc., a small software company in Sudbury, Mass. "This ruling may discourage innovation by developers, especially smaller ones. Who is to say that some large player can't come around and just rip off some feature that you believe is unique?"

Borland Chairman *Philippe Kahn says company can 'focus on innovation, not litigation'*

From Borland's point of view, however, the ruling lessens the legal inhibitions developers may feel. "It's fantastic because this affirms the fact that we can build a more competitive industry and focus on innovation, not litigation," Borland Chairman Philippe Kahn said.

The floodgates

However, some developers and attorneys last week said the inconsistency in previous court rulings on copyright infringement leaves software developers vulnerable to more litigation. That could, in turn, force developers to seek extensive and expensive patent protection for their software products — costs that would either be absorbed by developers or passed on to users.

"This ruling says that copyrights are open to attack," said Karen Casser, special counsel to Fletcher, Heald & Hildredth, a law firm in Rosslyn, Va. Casser is also a board member of the Computer Law Association in Fairfax, Va.

Lotus has yet to determine what its response will be. Tom Lemberg, vice president and general counsel at Lotus, said company executives were "surprised and disappointed" with the decision.

"As a matter of law, it is a gross misreading of the U.S. copyright laws," Lemberg said. "It undermines the innovation at the heart of the industry's success."

Previously, Lotus had been buoyed by the U.S. District Court's dismissal of a continuance of the trial sought by Borland. The trial to determine damages had been scheduled to begin today.

Lemberg said Lotus is now considering three separate courses of action. One would be to accept the finding. Another would be to ask the six judges of the Circuit Court to rehear the case. The third course would be to appeal the case to the U.S. Supreme Court.

The Supreme Court has not yet ruled on any intellectual copyright protection cases, Casser said. However, Supreme Court Justice Stephen Breyer heard arguments on the Lotus/Borland case when he was a U.S. District Court judge. As a result, he may have to recuse himself from the case if it should arrive at the high court. Lemberg said it was "absolutely premature to think about that."

However, Lemberg said this could be a model case to take before the Supreme Court. Lotus has 90 days to appeal the finding.

Lawsuit lowdown

The milestones in the Borland/Lotus lawsuit include the following:

Sept. 28, 1987 — Borland launches competitor to Lotus' 1-2-3 spreadsheet with Quattro Pro product.

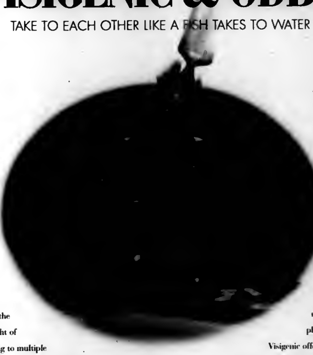
July 2, 1990 — Lotus files suit against Borland, charging that Quattro Pro infringes on its copyright.

Aug. 19, 1993 — Borland loses lawsuit to Lotus in federal court.

Aug. 11, 1994 — Borland/Lotus case goes before appellate court. Judge Stephen Breyer tapped to Supreme Court.

Oct. 6, 1994 — New appellate court hearing begins.

March 9, 1995 — Federal court overturns Lotus victory.



SAP readies client/server software suite

Middleware provides consistency

By Rosemary Cafasso

SAP AG is planning to boost its next-generation client/server application software with technologies such as a key middleware component for mainframe and client/server application coexistence, industry analysts and users said last week.

SAP is expected to begin shipping beta versions of R/3 Version 3 this summer, with general availability in late fall. SAP has emerged as a client/server powerhouse in the past two years, having built up a base of 2,400 worldwide customers of its R/3 integrated suite of applications.

Guenther Tolkmit, a vice president of technology marketing at the Walldorf, Germany-based software vendor, said SAP will ship the first release of its Application Link Enabling (ALE) as part of Version 3. ALE, which SAP officials began discussing at the firm's Sapphire international user conference last year, is message-oriented middleware that would enable SAP mainframe and client/server applications to share data.

With message-oriented middleware, applications can communicate by sending messages to one another for tasks such as requesting data. The middleware handles the communications, different protocols and translations.

More than middleware

Tolkmit said SAP's ALE will go beyond typical middleware, however. "ALE is really an application," he said. "It defines the message, how applications behave and when and how synchronization takes place. It happens on the applications rather than the database level."

Longer term, ALE will provide the underpinnings for SAP's distributed applications strategy, enabling users to run modules of SAP code at various sites, Tolkmit said. In addition, SAP intends to publish application programming interfaces so users could rely on ALE to link SAP and non-SAP applications.

"The concepts of ALE remove the constraints of having to run it off a single, logical database structure, so you can distribute it to sites," said Mike Capellas, director of information systems at Schlumberger in Houston, an R/3 customer recently briefed on ALE.

"We are placing reliance on ALE as we go forward with our rollout," Capellas said of Schlumberger's plans to install R/3 worldwide. "It'll offer us a higher degree of flexibility for the future."

Software in the know

Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston, said he considers ALE "intelligent middleware." It will provide users with tools to define the environment, and the software will then not only route data but "know what data is needed," Richardson added.

Industry analysts also expect SAP to use Version 3.0 as the vehicle to deliver improved application modules in areas where it is considered just adequate or weak. These include some human resources functions, distribution and process manufacturing.

Version 3.0 is expected to mark the debut of some systems management tools such as load balancing and performance monitoring.

Tolkmit said SAP will present ALE for consideration to the Open Application Group, a software company consortium launched last month. The group establishes specifications for application integration.

On-line analytical processing

Pilot will update OLAP tools

By Rosemary Cafasso

Pilot Software, Inc. plans to ship later this month upgraded versions of its on-line analytical processing (OLAP) tools, which are intended to provide some performance tweaks as well as links to industry-standard products such as Notes and Microsoft Corp.'s Excel.

Cambridge, Mass.-based Pilot, an approximately $40 million firm recently acquired by The Dun & Bradstreet Corp., offers an application development package along with LightShip, its client/server-based decision-support software. Pilot plays in the new OLAP arena, a market that consists of companies that provide data access, decision support or executive information systems.

Many OLAP vendors, including Pilot, also provide multidimensional databases.

Pilot has scheduled a March 20 release that, in addition to the Excel and Notes integration, would provide functions such as Microsoft's Open Database Connectivity support and more security options.

Pilot will also dramatically boost the maximum size of a single multidimensional database from 2G to 32G bytes.

George Kossl, a consultant in the IS group at Monsanto Co. in St. Louis, said he is particularly interested in bigger databases. The Pilot tools have increased user interest in accessing corporate data, which in turn has driven the need for bigger databases, he said.

"We had been bumping up against that 2G-byte limit all the time," Kossl said. "So, this will be a big advantage to us."

One dimension

LightShip Server Version 2.1 will also let users build multiple data hierarchies within a single dimension. Kossl said that function should also boost performance.

Previously, a user needed to create a separate dimension for each hierarchy, or related collection of data, which added to database complexities.

Pilot's tool set ranges in price from $25,000 to $100,000, depending on the number of users and the amount of consulting services required.

Namely . . .

Pilot's new modules will be offered as LightShip Sales and Marketing Information Systems Version 1.1, LightShip Server Version 2.1 and LightShip Professional Version 4.1.

Stress rattles help desk

CONTINUED FROM COVER

tions, which lose a wealth of knowledge each time an experienced support agent walks off the job.

"Help desk people are reservoirs of tons of information," said Jane Warnick, who manages the help desk at the U.S. House of Representatives in Washington. "When they leave, what goes with them is an extremely valuable corporate resource."

What is more, replacements must then be trained, a process that managers say can take several months.

To help stem such losses, Warnick and several other help desk managers have devised strategies to reduce stress, as well as capitalize on workers' broad range of knowledge and experience. The key is to reduce what is known on the help desk as PIE or phone-in-ear time.

Last year, most help desk staffers logged an average PIE time of almost 6½ hours per eight-hour shift, according to a survey conducted by The Help Desk Institute in Colorado Springs.

Knowing when to help

The 15-person help desk staff at the House of Representatives, for example, spends several hours each week developing training courses and teaching them to end users. Help desk staffers make great instructors because they already know the areas where users need help, Warnick said. Allowing users to meet the people behind the otherwise anonymous voices on the help desk also works to ensure more respectful and less stressful exchanges in the future.

"That's because users will abuse you on the phone if they don't know who you are," Warnick said. "It makes an immeasurable difference when they know who you are."

Diversifying help desk staffers' responsibilities also works to reduce monotony levels for workers who are often understimulated, according to Jeanne I. Simia, director of information systems at the American Association of Retired People in Washington.

"How many times can you say, 'Hit shift F7' " before tedium sets in?" Simia asked. "If you have taken advanced Exel [training] and all you get asked about is shift F7, it can be pretty understimulating."

Judy Cook, manager at Carolina Power & Light Co.'s Technology Assistance Center, has addressed the boredom issue by expanding staffers' non-PIE-time duties to include evaluating new hardware and software, analyzing call histories to identify trends and tracking vendors' contract performance records.

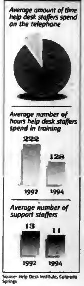
Software employed by help desks also is moving in a direction that reduces PIE time. At last week's conference, several vendors, including The Molloy Group, Inc. in Parsippany, N.J., and Software Marketing Group Associates in Des Moines, Iowa, demonstrated systems that let desktop users send trouble tickets to the help desk and receive back solutions — all via electronic mail.

But so far, companies have been slow to adopt some of the more advanced help desk technologies that work to deliver service directly to end users.

In 1994, less than 20 percent of companies that responded to the Help Desk Institute survey had implemented voice response units, never mind more sophisticated expert systems.

Moreover, most help desks are set up so users can contact staffers via pagers and cellular telephones, day and night, said Susan W. Chamberlain, a management consultant in Piedmont, Calif. "It's not like putting the tools in the barn and going in for the evening," she said.

Helpful data



Source: Help Desk Institute, Colorado Springs

5

Unix vendors cast CDE in new roles

By Jean S. Bozman

The Common Desktop Environment (CDE) was launched at UniForum 1993, but it took two years for the major Unix vendors to formally unveil the unified Unix desktop at what is expected to be a quiet UniForum 1995 in Dallas this week.

To get the job done, CDE sponsors enlisted the help of TriTeal Corp. in Carlsbad, Calif., which completed the interoperability testing of CDE for multiple platforms.

Originally cast in the role of a head-on competitor of Windows, CDE is now seen as a unified, user-friendly Unix desktop [CW, Jan 23]. "CDE is important for technical purists and for the [independent software vendors] that are developing workstation applications," Tom Willmott, a vice president at Aberdeen Group in Boston, said last week. "It will make the development and porting process more efficient and less costly."

UniForum'95

But CDE will also help users at sites where many types of Unix workstations coexist. "If CDE is successful, and any Unix box has the same look and feel, that's desirable for the end user," said Ron Netson, a team leader at Los Alamos National Laboratory in Los Alamos, N.M. It will also mask many unwanted aspects of Unix such as the character-based Unix command lines, he said.

"There has been some question about the [Unix] industry's ability to work together," said John O'Keefe, vice president of Unix marketing at Digital Equipment Corp. "Now, we've got two examples: SPEC 1170 and CDE." SPEC 1170 was formally relaunched as the Single Unix Specification last month, and CDE will be the focus of several industry announcements at UniForum.

"For people who have multiple Unix products [from different vendors], it becomes increasingly difficult if each [Unix platform] has a different look and feel," O'Keefe said.

Although the show will feature a few high-profile Unix industry unity events, UniForum is also expected to be the site of product and strategy announcements from Bull HN Information Systems, Inc., SunSoft, Inc., IBM, Digital Equipment Corp. and Hewlett-Packard Co.

Industry sources blamed the upcoming Interop show in Las Vegas for distracting some vendors that otherwise would have thrown more effort and resources into UniForum planning. As it is, UniForum's projection of 15,000 attendees at the Dallas show falls about 5,000 short of last year's attendance in San Francisco, show organizers said.

UniForum highlights include the following:

- A Tuesday keynote speech by Silicon Graphics, Inc. Chief Executive Officer Ed McCracken will contrast Unix and Microsoft Corp.'s Windows NT, and a Thursday keynote by Novell, Inc. CEO Robert Frankenberg will detail high-volume "building blocks" for distributed computing.
- Digital plans to announce its adoption of X/Open Co.'s Unix trademark as part of a new name for its DEC OSF/1 Unix operating system. Other vendors may follow suit, analysts said.
- Data General Corp. is expected to enhance its Enterprise systems and network management systems and demonstrate four 16-processor Aviion 9500 machines working in one DG AV cluster.
- IBM will unveil networked storage support for non-IBM platforms.
- Apple Computer, Inc. is expected to announce enhancements for its Macintosh Application Environment Mac-on-Unix interface.
- At the last minute, the Open Software Foundation (OSF) canceled plans for a news conference tomorrow on the deployment of its Distributed Computing Environment (DCE) in Unix vendors' products. While they did not elaborate, an OSF spokeswoman said the event was postponed until an April DCE developers conference in San Jose.

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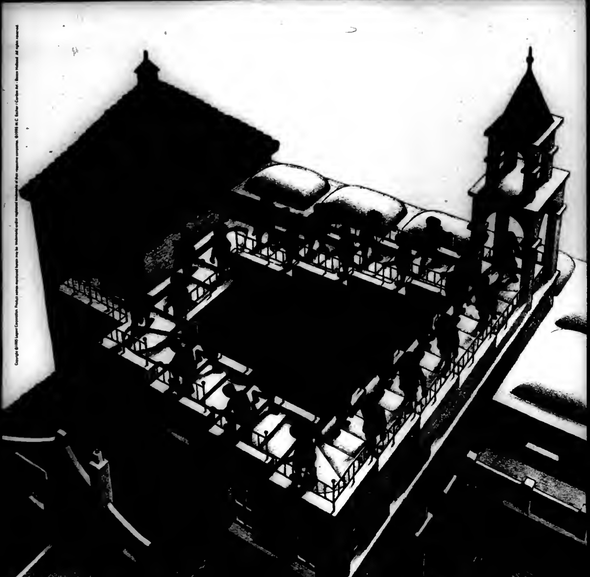
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IBM takes steps to get back on users' good side

By Craig Stedman
LOS ANGELES

IBM is trying to get its broad software line to work better as a whole so it can successfully offer product stacks integrated from the operating system on up. But some users are taking a show-me attitude, saying the vast bulk of IBM's product offering makes that a daunting task.

The concept of a seamless software offering from a single vendor is an appealing one, said a number of attendees at the recent Share, Inc. user group conference held here. And they agreed that IBM is sending out the right signals in the aftermath of forming an integrated software group in early January.

Those positive signals include the scheduled beta shipment this week of a so-called "solutions pack" that combines OS/2 Warp with a range of IBM's network connectivity software.

"I'd much rather be able to turn something on and have it work [than have to] buy separate pieces of software" that must be tied together by users, said Al Williams, manager of distributed systems support at Pennsylvania State University's Center for Academic Computing in State College, Pa.

However, several other customers said IBM's track record does not inspire a vote of confidence that it can get the integration job done.

Thanks to the recentralization of IBM, implemented by Louis V. Gerstner since he took over as chairman in 1993, the company is more coordinated than it was in the recent past, said Ed Wehner, business systems manager at MEMC Electronic Materials, Inc. in St. Peters, Mo. Nonetheless, "sometimes the left hand of IBM doesn't know what the right hand is doing," he added.

For example, IBM did not test an early release version of the DB2/6000 database that was shipped to MEMC to ensure that it would compile CICS transaction data, Wehner said. IBM's CICS and Distributed Computing Environment (DCE) development teams also pointed fingers at each other when problems arose with its CICS for AIX software, which is layered on top of DCE, he added.

The product units at IBM "are all kind of in their own areas, at least that's the perception," said Wehner, one of the first customers to put CICS for AIX into production. "Each little group is an island," he said.

Going the distance

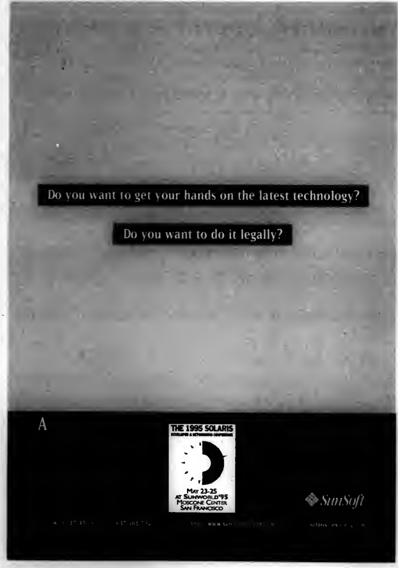
Thomas Loane, vice president of computer and communications services at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla., said there are even inconsistencies between the mainframe, AS/400 and RS/6000 versions of individual products such as CICS and DB2.

IBM has "got a long way to go" to tie everything together, Loane said. "But to be fair, there's nobody else that's even trying to do something like that. They're the only company with that broad of a product line. Nobody else comes close," not even Microsoft Corp.

Lee Reiswig, general manager of IBM's Personal Software Products division, acknowledged that the company's products have not always lined up very well. But he promised that users "will see us do much more in the way of trying to stack up all the parts of a solution," including the operating system, applications and middleware.

An early example is OS/2 Warp Connect, which has bundled support for TCP/IP, remote connections, peer-to-peer networking and access to file and print services on LANs. General availability is expected in late April or early May, and other OS/2 solution packs should follow in the summer, Reiswig said. Similar offerings are also likely under AIX, he added.

However, Stan Johnson, director of information systems at Worldport LA, the port authority in Los Angeles, said IBM faces an uphill struggle to regain credibility at shops such as his that have reduced their reliance on the computer giant.



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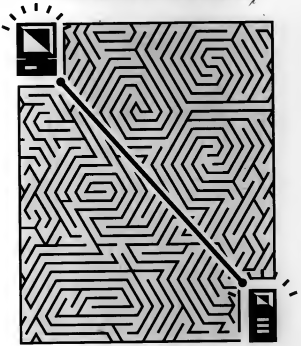

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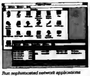

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Time Warner takes one-database route

Sybase anchors challenge to local Bells

By Kim S. Nash

Despite a mantra of heterogeneous computing echoing through information systems shops these days, Time Warner Communications revealed plans last week to buck the trend and build a one-database shop.

The $1 billion unit of media giant Time Warner, Inc. hopes to milk advanced features in Sybase, Inc.'s System 10 database in its mission to launch local telephone service in several areas of the U.S. Looser telecommunication laws are letting nontraditional players in the phone business.

Time Warner Communications hopes to capitalize on its existing fiber network, which stretches across a large part of the U.S. The firm also plans to launch telecom services via a hybrid fiber and coaxial cable network in the third quarter, said Mohammad Fahim, director of IS and services at Englewood, Colo.-based Time Warner Communications.

However, outrunning existing regional Bell operating companies (RBOC) and other cable suppliers with the same idea will be tough.

"That'll be one hell of a battle," said Bert Heath, a telecommunications analyst at Computer Intelligence/InfoCorp in La Jolla, Calif. "The RBOCs have more resources and tremendous cash flow. This has to be some technology infrastructure [Time Warner Communications] is building."

Walking the walk

To give the plan legs, Time Warner Communications recently signed a multimillion-dollar deal to standardize on Sybase database software atop Sun Microsystems, Inc. hardware across at least 30 of its 40 units nationwide, said Fahim, who resigned as Sprint Corp.'s IS manager last year. Custom Sybase consulting is also part of the deal.

Before settling on Sybase, Fahim evaluated database heavyweights Informix Software, Inc. and Oracle Corp. last year. Each product had pros and cons, he said, but Sybase pulled ahead in technology demonstrations. After that, Fahim prodded each firm "to prove to me that I will be successful with you."

Mohammad Fahim

Informix competed on price, matching the offer of front-runner Sybase. Oracle salespeople, meanwhile, tried a strong-arm approach, emphasizing Oracle's dominant market share in Unix relational databases, Fahim said. The Oracle salesman "said the big reason why I should pick them is because they are big," Fahim said. "I am still mystified."

Sybase people, rather than the products alone, finally nabbed the deal. Sybase founders Mark Hoffman and Bob Epstein have each visited Time Warner Communications a few times since negotiations began late last year. "That means everything to me," Fahim said.

It also means a lucrative deal for Sybase. Time Warner Communications has so far spent $2 million on Sybase products and nearly $500,000 on consulting services. Fahim said he expects to pay for more consulting as well as spend $1 million to $2 million on Sybase System 10 databases, Replication Servers and related software during the next several years.

Unconventional code

The company's IS blueprints buck other client/server and, some might say, traditional IS conventions as well. For example, Time Warner Communications balked at the high price of competent object programmers in the U.S. Instead, Fahim has put the 12-hour time difference between Pakistan and the U.S. to good use. The company faxes application specifications to 40 Pakistani programmers at night. "I receive finished code the next morning," he said. An order processing application was recently coded this way.

Training and retaining good object programmers is pricey in the U.S., Fahim said. Going overseas is less expensive and, so far, less worrisome. Offshore developers "are dedicated to our project, and there's not a lot of other people wooing them," he said.

But a programming stumbling block arose because Sybase's database does not understand object technology. Time Warner Communications had to build its own translation layer to sit between the company's Smalltalk programs and the System 10 relational database. Should the company decide to bring in other major Sybase products, such as its enterprise framework methodology, custom object transistion software will have to be written for it.

Translating object to relational structures and back again "is a product opportunity for Sybase," Fahim said dramatically.

Cost cutters turning to shared services

IS tries melding far-flung operations into megaservice centers

By Julia King

▪ To centralize or not to centralize is no longer the burning issue for information systems organizations under pressure to achieve greater economies of scale from multimillion-dollar technology investments.

These days, the question is what to consolidate and where, according to IS executives at the growing number of companies involved in the cost-cutting process of converting some or all IS operations to so-called shared services.

Under shared services — a familiar management model in areas such as finance and human resources — scattered IS operations are pulled together into megaservice centers, which then serve all of a company's business units around the globe.

For instance, ITT Corp. in New York recently combined dozens of small, scattered telecommunications groups into a single telecom unit that now serves the entire $24 billion conglomerate.

"Now we have a $100 million phone bill instead of 100 $1 million phone bills," said David Starr, corporate chief information officer. "That allows all of our business units to function as a $24 billion company even though they may be only a $200 million company."

A little of both

A recent *Computerworld* survey of 200 senior business executives indicates that large companies are shunning a strictly centralized or decentralized approach to managing information technology. Only 7% of respondents indicated a preference for decentralized control and 17% for centralized control. The majority, 76%, prefers a balance.

"IS is a natural candidate for shared services because technology touches all facets of a business," said Albert Ritardi, former vice president of administrative services at Allied Signal, Inc. and current president of Ritardi & Associates, Inc., a shared services consultancy in Basking Ridge, N.J.

During 1993 and 1994, Allied's shared services initiatives — which included the consolidation of 17 data centers into a single data processing megacenter in Tempe, Ariz. — cut costs by about $42 million, he said. "And these are cost savings that occur year after year after year. They're not onetime events," Ritardi said.

A real need

Pfizer, Inc. in New York is converting data processing, telecommunications and PC LAN management to shared services. In doing so, Cathy O'Connor, vice president of corporate information technology, estimates the pharmaceutical giant will save millions of dollars on telecommunications costs alone.

"We now spend $15 million annually on telecommunications. By going to vendors and negotiating with a full set of requirements, we're hoping to get savings or cost avoidance in the $3 million to $4 million area," O'Connor said.

But cost cutting is not the only thing driving the shared services trend. Changing business requirements is also a motivating factor.

As several of its prescription drugs are converted to over-the-counter products, SmithKline Beecham PLC, the London-based pharmaceutical giant, is creating a U.S. shared services group from several smaller IS units now located on either the pharmaceutical or consumer side of the business.

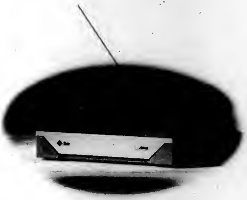
SmithKline Beecham's Lou Valente: *Going between businesses no longer like crossing a 'no-man's-land'*

"What we're doing is building a capability to go between businesses," said Lou Valente, vice president and director of information resources at SmithKline's North American operations. "Before, that was kind of a no-man's-land," he said.

Under shared services, that same territory could turn out to be an oasis of opportunity for the company's 200 Philadelphia-based IS professionals, Valente noted.

For example, he said IS staffers from both the pharmaceuticals and consumer divisions will work side-by-side on the rollout of new financial and contract management systems that are being implemented as part of the company's shared services.

"That kind of cross-fertilization effectively creates a path of advancement between the businesses that wasn't there before," Valente said.



High-tech mergers reach record high

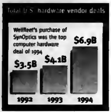
Trend expected to continue throughout 1995

By Neal Weinberg

Last year turned out to be a record-breaking one for mergers and acquisitions in the computer industry as a slew of megadeals catapulted the dollar value of these couplings to an all-time record of $56.5 billion. And as the new year pushes into the second quarter, analysts say they expect more of the same.

Two trends drove much of 1994's manic activity: an infusion of capital from nonindustry players and partnering between growing companies in similar markets, according to analysts and Broadview Associates, Inc., a Fort Lee, N.J., deal maker that published a report on the topic.

Domestic and foreign players in noncomputer industries have moved beyond eyeing U.S. computer companies and started buying them as a way to move into new markets.



Source: Broadview Associates, Inc., Fort Lee, N.J.

For example, British print publisher Reed Elsevier PLC shelled out $1.5 billion for Mead Data Central in Dayton, Ohio, for its Lexis and Nexis on-line database services. And telecommunications giant AT&T Corp. snapped up the former NCR Corp., a major systems supplier.

The second trend involves successful companies with complementary technologies teaming up to extend their reach.

Falling into that category is Microsoft Corp.'s pending $1.5 billion purchase of Intuit, Inc. and Wellfleet Communications, Inc.'s $1.27 billion midsummer purchase of SynOptics Communications, Inc., which resulted in the formation of Bay Networks, Inc.

The urge to merge will continue this year, predicted Charles Federman, managing director at Broadview Associates.

Silicon Graphics, Inc. set the tone with last month's announcement that it will pay $500 million for Alias Research, Inc. and Wavefront Technologies.

But while merger mania continues unabated, Howard Anderson, managing director of The Yankee Group in Boston, warned companies not to jump on the bandwagon just because an investment banker pitches a deal.

Danger lurks

The danger of an acquisition, Anderson said, is that it "defocuses" a company, diverting attention from its core business. He said only about 20% of transactions make sense — those made for solid strategic reasons such as gaining access to a new channel or a necessary technology or providing a better solution to customers.

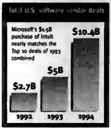
A number of companies executed multiple deals in 1994. Cisco Systems, Inc. made three, Microsoft made four, and Ameriquest Technologies, Inc. made five.

According to Broadview's figures, merger and acquisition activity soared in all categories, but the most dramatic increase occurred in software.

In fact, the five biggest software deals of all time occurred last year, according to Peter Rogers, an analyst at Bear, Stearns & Co. in San Francisco.

Those include the Microsoft/Intuit deal, Novell, Inc.'s $1.4 billion acquisition of WordPerfect Corp. and Sybase, Inc.'s $944 million purchase of Powersoft Corp. Before 1994, the record holder was Borland International, Inc.'s purchase of Ashton-Tate Corp. for $440 million back in 1991.

The acquisitions themselves do not surprise Rogers, he said, because consolidation happens in all industries. But Rogers called the pace of acquisitions in the software industry "astonishing." He predicted that PC software will be the focus of merger and acquisition activity in the future.



Source: Broadview Associates, Fort Lee, N.J.

Charles Phillips, a software industry analyst at Morgan Stanley & Co. in New York, said deals will accelerate among software tools and applications companies because those areas are the most fragmented.

Richard Shaffer, editor of the "Computer Letter" newsletter, said more deals are being made because the smaller players must find ways of becoming larger quickly to compete against dominant forces such as Microsoft.

Rogers said a wide gap exists between powerful players in particular niches, such as Microsoft, Novell and Lotus Development Corp., and their much smaller competitors.

"The rich are getting richer, and second- and third-tier companies are having more problems," Shaffer said.

Driving force

Yet another reason for the surge in activity is that values have settled down in the post-junk bond era, and expectations among smaller companies looking to be purchased have leveled off, said Stephen T. McClellan, an analyst at Merrill Lynch & Co. in New York.

In the hardware arena, acquisitions have been driven by companies that decided it was easier to buy technology than to develop it, said John McGilvray, an analyst at Input in Mountain View, Calif. Buying proven technology is preferable to developing it from scratch because developing it can be expensive, time-consuming and risky, he said.

Major deals in 1994 included Micron Technology, Inc.'s purchase of Zeos International Ltd. for $405 million, Quantum Corp.'s deal to buy Digital Equipment Corp.'s disk drive OEM business for $400 million and Storage Technology Corp.'s acquisition of Network Systems Corp. for $304 million.

Another factor driving acquisitions is that traditional enterprise hardware manufacturers are looking for higher-margin, value-added product lines, Federman said.

The pace of noncomputer companies plucking hardware and software properties is also expected to accelerate, especially in content services.

"One major catalyst is successful, large, cash-rich companies broadening out into other sectors of the market," McClellan said.

"The princes of global commerce," as Federman described them, are in the hunt for information technology properties. The hunters include telecommunications, cable television, entertainment and publishing entities.

For example, British publishing company Pearson PLC spent $462 million last year to buy The Software Toolworks, Inc., a California developer of educational and entertainment software.

Shaffer said that deal gave Pearson "a four-year leap in technology."

Also fueling the fire is the fear of being left behind in the still-hazy area of on-line, interactive services. "Everyone wants a piece of the on-line information highway, and no one's quite sure how to get on it. But you'd be crazy not to be putting your foot in the water," Phillips said.

Shaffer said these deals will accelerate until the dust settles and the major players emerge. Or "until we get a dose of reality," he said.

Briefs

Platinum Technology to buy Trinzic

Platinum Technology, Inc. will buy **Trinzic Corp.** in Palo Alto, Calif., for $150 million. The deal bolsters Platinum's Open Enterprise Systems Management strategy. Platinum also plans to acquire **SQL Software Corp.** in San Francisco, a provider of Windows-based development tools for managing database server objects.

SMC warns investors

Networking vendor **Standard Microsystems Corp.** (SMC) anticipates lower-than-expected results for its fourth quarter ended Feb. 28, with revenue of approximately $101 million, up from $93 million a year ago. Profits are expected to be between the $5.9 million reported for the same quarter last year and $6.8 million. The Hauppauge, N.Y., company blamed the low figures on underrepresentation at larger value-added resellers and end users.

SHORT TAKES **Concurrent Computer Corp.** dropped plans to buy **Harris Computer Systems Corp.** after reviewing an unsolicited proposal from the Fort Lauderdale, Fla., company. . . . **USA Mobile Communications Holdings, Inc.** in Cincinnati completed its purchase of **Professional Communications, Inc.** This is USA Mobile's fifth acquisition in the past year and makes it the sixth-largest vendor of paging services in the U.S. . . . **Sterling Software, Inc.** has acquired **Maxxus, Inc.**, a provider of financial electronic data interchange software in San Francisco. . . . **Storage Computer Corp.** has acquired **Vermont Research Corp.** in North Springfield, Vt.

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- 23 Dir./Mgr. Sys. Development, Sys. Architecture
- 31 Programming Management, Software Developers
- 41 Engineering, Scientific, R&D, Tech. Management
- 60 Sys. Integrators/VARs/Consulting Management

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- 12 Vice President, Asst. VP
- 13 Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51 Sales & Mktg. Management
- 70 Medical, Legal, Accounting Management

OTHER PROFESSIONAL MANAGEMENT
- 80 Information Centers/Libraries, Educators, Journalists, Students
- 90 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

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- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
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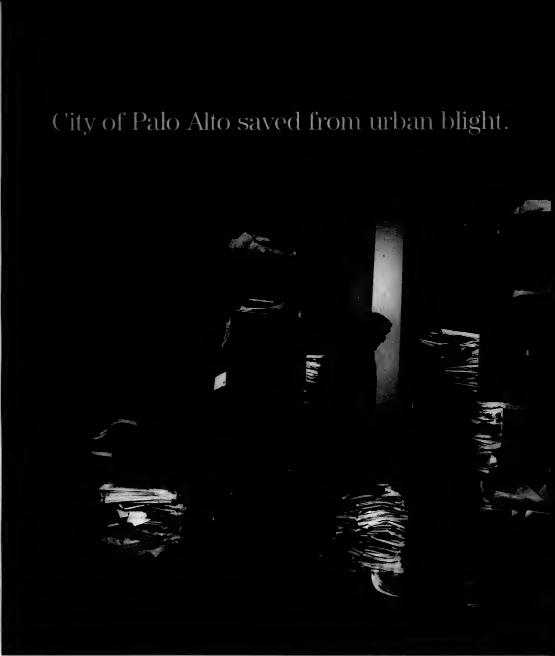

City of Palo Alto saved from urban blight.

[redacted]

Seeking resolution

The maelstrom of charges, countercharges, appeals, innuendos, finger-pointing, finger-wagging, denials and name-calling swirling around Microsoft's competitive practices is nearly out of control.

Without question, this game of legal football is sucking valuable cycle time away from the development of technology solutions — which is what Microsoft and others are supposed to do for a living. Through it all, nothing is close to resolution.

So in a simplistic, if not wholly provincial, way, let's put forth a solution to much of the controversy.

I'll wager that 80% of the current flap is about a single issue, namely Microsoft's dominance of the desktop operating system market, and the alleged — no, let's say definite — advantage this gives their other lines of business.

I'd argue that splitting Microsóft up — a la AT&T — is not at all a good idea because it would severely weaken a company that has delivered technology solutions to corporations on an unrivaled scale.

Still, how can its competitors and the courts be sure Microsoft is not deriving unfair advantages with its operating system monopoly? Years ago, a very similar situation arose between IBM — which monopolized mainframe operating systems — and its competitors.

This was the partial resolution: For a while, mainframe operating system developments had to be fully divulged to a sort of board of overseers that included an IBM competitor as well as independent overseers. And no information could be made available to IBM's software developers ahead of its competitors.

IBM continued to reap the lucrative operating system revenue, competitors felt they had equal footing, and the matter never reared its ugly head again.

So how about a similar board of overseers for Microsoft's operating system development? I suppose while we're at it, we could throw a similar fix at Novell, given its dominance of the network operating system arena. Call it the '90s equivalent of unbundling.

Somehow I think Microsoft, or Novell for that matter, won't go for this solution. Ultimately, though, it might be a better alternative to a protracted legal battle or a court-ordered divestiture.

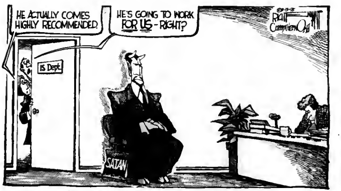
* * *

My editorial from last week, "Hackerama," precipitated a flood of mail pointing out my misuse of the term "hacker." You are all correct. I should have used a word other than hacker to describe a person who breaks into computer systems with some foul intent. Maybe "thief," "criminal" or "cybercrook" would have been a better choice.

On the plus side, most of the mail applauded the overall thrust of the piece, proving the medium's the message.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*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[redacted]

Slap in the face

The article, "Federal Agency gets a client/server grip," [CW, Feb 13] is uninformed journalism. I was the project manager at the U.S. Agency for International Development's (AID) Washington Accounting and Control System (AWACS), and I left in December 1993. At that time, we were testing the first of nine client/server modules to be implemented by October 1994 and were working on subsequent modules. Unfortunately, the project was becoming mired in bureaucratic muck stirred up by your "management wizard" Larry Bryan.

The AWACS team had meticulously stepped through the Software Development Life Cycle and kept the White House Office of Management and Budget (OMB) fully informed. Our efforts were rewarded by a conditional waiver to proceed with the approach of adapting another agency's software. This waiver was possible because we proved our case empirically, not with cheap talk such as that in your article.

To say "a probe of the systems modernization effort was under way . . . [and] that managers and contractors had been lying to the White House Office of Management and Budget" is a slap in the face to the former AWACS team. Unless you have proof of these accusations, an apology is in order.

Keith Tayloe
Annapolis, Md.

Most of the story was based on taped interviews with current AID officials. However, the conclusion that Byrne and his boss substantially improved practices and systems is supported by independent sources at three oversight bodies. These sources said most of the improvements occurred after Tayloe's departure. The statement that the OMB had been misled earlier in the AWACS project is an assertion by Byrne. — Editor

Cry babies

I was not surprised to see that you finally published an article about the great waste of time computer games cause in the office environment.

However, my concern is with a television news report I saw several weeks back that said a state was trying to pass a law that would allow employers to ban computer games from office PCs. If this is true and the law passes, then we are nothing more than a country of babies that go crying to the government every time some bully pushes us down.

Why does any business need a law when it seems that a simple company policy would do?

Jim Ward
Cincinnati

Get the terms right

I liked the point of Bill Laberis' column about the questionable moral fiber of people who commit infocrimes [CW, March 6]. Still, I'm not happy about the way media-types use the word "hacker." Although "crackers" also happen to be hackers (see The Jargon File on the Internet), the converse is not necessarily true.

Bill should tell his son that it is a wonderful thing to be a hacker, but it is unethical to use his skills as a hacker to crack systems without invitation.

Pohl Longsine
Lincoln, Neb.

AS/400 just does it

Hewlett-Packard may not see many 64-bit applications ["HP lifts curtain on 64-bit chip, keeps mum on Intel project," CW, Mar. 6] but when IBM ships its 64-bit AS/400 PowerPC boxes later this year, all 20,000-plus existing AS/400 applications will immediately run in 64-bit address space. Unlike other architectures where real work is required to convert applications from 32-bit to 64-bit, on the AS/400 it just happens.

David E. Peterson
President
Midrange Open Business Strategies, Inc.
Rochester, Minn.

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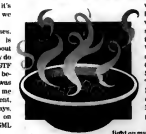
Use acronyms with TLC

Chris Miksanek

So what is a TLA? Sometimes when I get to hurling acronyms around I start to think I'm capable of speaking in tongues.

For example, my alarm goes off at 5:30 a.m. I crawl out of bed and into my 4x4 to head up 405 to my office in R&D. I try to log on, but MVS is down. I call the MTO. JES took a hit. They're IPLing now. VTAM's not up yet, so I get a coffee.

I'm back. The message light on my PBX phone is on. It's from my friend Tony. He tells me it's been four years since he was promoted from DBA to DBA. He asks me to lunch so he can carp about it some more. That sounds like a good idea because it's been a while since we BSed.



The day progresses. TSO response time is nothing to brag about (Does the SRM actually do anything?), and my GTF output was purged because the SPOOL was full. My boss wants me to document the incident, which delays me. He says, "Always CYA." I log on to VM and create a GML file.

It's the p.m. I'm back on the 405, and it's backed up, and I'm POed. I lean out the window and ask a guy on a car phone what's going on. He says, "MYOB." Such is life in LA. I get home and turn on the TV. All that's on are reruns: "S.W.A.T.," "The Man from U.N.C.L.E.," "CHiPs" and "M*A*S*H." I throw R.E.M.'s latest album on my CD player, boot up my PC, play a few games and hit the hay.

For the benefit of the AI (Acronym Impaired), I'll "decompress" this odyssey.

Acronyms can be great for language compression, but sometimes they get out of control.

For example, my alarm goes off at 5:30 ante meridiem. I crawl out of bed and into my four-wheel drive vehicle to head up Interstate Highway 405 to my office in research and development. I try to log on, but Multiple Virtual Storage is down. I call the Master Terminal Operator. The Job Entry Subsystem took a hit. They're Initial Program Loading now. Virtual Telecommunications Access Method's not up yet, so I get a coffee.

I'm back. The message light on my Private Branch Exchange phone is on. It's from my friend Tony. He tells me it's been four years since he was promoted from Database Analyst to Database Administrator. He asks me to lunch so he can complain about it some more. That sounds like a good idea because it's been a while since we conversed.

The day progresses. Time Sharing Option response time is nothing to brag about (Does the System Resources Manager actually do anything?), and my Generalized Trace Facility output was purged because the Simultaneous Peripheral Operations Online file was full. My boss wants me to document the incident, which delays me. He says that I should cover my a&% . . . or be careful. I log on to Virtual Machine and create a Generalized Markup Language file.

It's the post meridiem. I'm back on Interstate Highway 405, and it's backed up, and I'm mad. I lean out the window and ask a guy on a car phone what's going on. He says, "Hey, mind your own business!" Such is life in Los Angeles.

Anyway, you get the point. Acronyms are all around us, and they're great for language compression, but sometimes they get out of control. Case in point, a friend of mine asked me if I knew what a "TLA" was. I didn't. He said, "TLA: Three-Letter Acronym!"

Miksanek works at a software development company as a maintenance programmer.

Activism key to fighting Microsoft monopoly

Martin A. Goetz

Judge Stanley Sporkin believes the Justice Department has not addressed the concerns of software companies. This presents a golden opportunity for vendors and trade associations.

Regardless of the outcome of the Justice Department/Microsoft appeal, the industry *can* play an active role in fighting the Microsoft monopoly. Here are four ways to make that happen:

The industry can play an active role in fighting the Microsoft monopoly.

1. Support reverse-engineering to achieve interoperability. The recent Microsoft v. Stac Electronics trade secret suit addresses important issues about interoperability and compatibility. But while the settlement between the two companies resolved their specific trade secret disputes, it merely highlighted similar issues facing other software companies — most specifically, the uncertainty of what a software company legally can and cannot do. Reverse-engineering and the related issues of cloning, "clean rooms," access to source code and similar matters remain at the heart of many suits still pending. Lotus v. Borland is a prime example.

2. Support the introduction of new legislation that will protect small, growing companies. The Justice Department, the Federal Trade Commission and the Copyright Office, in conjunction with private industry, should jointly make recommendations to Congress on ways to ensure software interoperability and compatibility. At a minimum, U.S. copyright law should be revised to conform to the European Union Copyright Law, adding reverse-engineering to the Fair Use copyright statutes.

3. Petition the Justice Department and the courts to restrain Microsoft from inserting overly restrictive clauses into its licenses. Microsoft has included noncompete and other restrictive clauses in its licenses for beta copies of MS-DOS 6.0. The proposed consent decree did not address the problems that this creates for software companies. However, the Justice Department is greatly concerned about the requirements placed on Stac Electronics and other companies, and it may be open to modifying the consent decree.

4. Get active. Software companies that believe they cannot effectively compete with Microsoft because of that company's questionable business practices should approach the Justice Department both directly and through their trade associations. At a minimum, industry companies and groups should demand that Microsoft release interface and other information to all companies, including its competitors, in a timely manner. Walls should be erected within Microsoft so its application groups do not receive interface or new feature information on the company's operating system prior to its public disclosure.

Under the terms of the proposed consent decree, the Justice Department can reopen the Microsoft antitrust case at any time. With your active participation, perhaps it will, giving the industry a level playing field that will foster innovation and fairness for software companies and users alike.

Goetz, founder of the former Applied Data Research, is now president of Goetz Associates in Teaneck, N.J.

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OS/2 Full Pack: It's well worth the wait

By Edward J. Dombek

A few months ago, we tested IBM's OS/2 Warp Version 3 — the version that needs Microsoft Corp.'s Windows to run Windows programs — on a stand-alone system. After several weeks of waiting for the release of the product, we finally received the "full pack" version, which includes OS/2 plus Windows. The full-pack version of OS/2 is the one my company, Trustmark Insurance Co., is using in its production environment.

When we put the full-pack version into operation at Trustmark two weeks ago, we were impressed; its performance seems faster than the full-pack version of its predecessor OS/2 Version 2.11.

We also got solid productivity gains out of the LaunchPad feature — a new screen object that allows users to add any object at will. Its installation was smooth, although it required a number of reboots and networking components were time-consuming to load.

The only glitches we discovered were inconsistencies in the fonts from WordPerfect, the Novell, Inc. Applications Group. The product

OS/2, *page 44*

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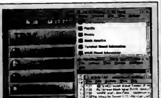
(800) 342-6672



IBM's Web Explorer, *the World-Wide Web browser for Internet access, is incorporated in OS/2 Full Pack*

■ A fast CD load of the basic operating system and a lengthy install of networking components went off without a hitch in this evaluation. Operation of all the major applications locally and on Novell's NetWare 3.11 and 3.12 servers was smooth. The full pack definitely outperforms OS/2 2.1.

■ Little glitches included inconsistent desktop fonts for WordPerfect's 6.1 for Windows and a lack of support by OS/2 Full Pack for our Hewlett-Packard LaserJet 4Si and DeskJet 1200C printers – even though the printers are supported by OS/2 Warp.

Computer theft

Computer market: Hot in more ways than one

By Gary H. Anthes

When asked why he robbed banks, Willie Sutton is said to have replied, "Because that's where the money is." A 1990s incarnation of Sutton might go after your laptop computer instead.

Or, he might just rip off the memory chips from your office PC.

Security experts and users report a sharp rise in computer part and computer theft, which has been encouraged by computers' shrinking size, their growing availability as employees take to mobile computing and a booming black market.

The theft of PCs has quadrupled in the past year, according to the Stolen Computer Registry in New York, which maintains a database of stolen computer serial numbers for law enforcers, resellers and insurance companies.

"Theft of small computers and components is becoming the most significant crime of the 1990s, even though it is ignored by most people in information technology because it is so low-tech," said Donn Parker, senior consultant for information security at SRI International in Menlo Park, Calif. "I believe it will become more serious than Selectric typewriter theft in the 1970s."

Criminal offense

[illegible]	[illegible]	[illegible]
Theft	275,000	$1.01B
Power surge	389,000	$318M
Accident	276,000	$246M

Source: Safeware, The Insurance Agency, Inc., Columbus, Ohio

According to an annual survey performed by Safeware, The Insurance Agency, Inc. in Columbus, Ohio, $1 billion worth of computers were stolen in the U.S. in 1993. Statistics from the FBI show that only 7% of the gear reported stolen is recovered.

But security experts and users say the greatest risk is loss of data, not hardware. "One large bank client reported to me they were losing an average of one PC per day, but I responded that they were losing, on average, 300M bytes of bank information every day," Parker said.

Value of information

"The value of the information stored on the piece of hardware is almost always significantly greater than the value of the hardware itself," said Ed Hepker, administrator of information security at USA Group, Inc. in Indianapolis. He said a special concern is employees who travel with computers that have communications software preloaded with dial-in numbers for corporate networks and sometimes even user passwords.

Lack of care by travelers who forget they are "carrying around the equivalent of a Rolex watch" is a major cause of loss, said Jim O'Neil, information security manager at Pacific Bell in San Francisco. "One contemporary had his lap-

Theft, *page 45*

HP, AT&T release lower-cost PCs

By Jaikumar Vijayan

■ Emerging PC heavyweights Hewlett-Packard Co. and AT&T Global Information Solutions recently unveiled a line of aggressively priced desktop products aimed at the corporate marketplace.

While HP continued to flesh out its nearly all-Pentium corporate lines with more low-cost Pentium models, AT&T GIS' 12 new introductions focused on increased communications and remote-access capabilities.

A sample of new products

Vendor/Product	AT&T GIS/ Globalyst 630 minitower	Hewlett-Packard/ HP Vectra XU 5/75
Processor	75-MHz Pentium	75-MHz Pentium
RAM	16M bytes (up to 128M bytes)	8M bytes
Hard drive	850M bytes	540M bytes
Local bus	PCI	PCI
Other	Integrated Vistium Share collaboration software for remote file sharing, editing and file transfer	DMI-compliant asset management software
Price	$2,499	$2,520

Looking to lead

Starting at an estimated selling price of less than $1,500, HP's new Pentium-based Vectra PCs once again demonstrate the company's objective to become a price leader in the industry, said Boris Elisman, manager of desktop product marketing and programs at HP.

The new PCs, which include 75-, 90- and 100-MHz Pentium-based systems, come standard with Desktop Management Interface code, Peripheral Component Interconnect (PCI) buses and graphics capabilities.

Along with the introduction of the new products, HP also rolled back prices by up to 16% on its OmniBook notebook PCs, up to 11% on its Vectra desktop lines and 13% on its NetServer server lines. The cuts are the third major reduction HP has announced in the past six months.

"HP's almost always exclusively been a follower — now we are assuming a leadership position" as far as desktop pricing is concerned, Elisman said.

Meanwhile, AT&T, which last year broke into the Top 10 list of PC vendors, according to figures from International Data Corp. in Framingham, Mass., is trying to differentiate itself from other vendors by integrating more communications features into its line of Globalyst PCs, said Rob Howe, vice president of worldwide PC marketing at AT&T GIS.

"The big story [from AT&T] is PC&C [PCs and communications]. All our systems are very communications-intensive," Howe said.

A PC bundle

The new systems, all of which are based on 32-bit PCI and a wide range of processors, including Intel Corp.'s 66-MHz I486DX2 processor and the 100-MHz Pentium chip, come bundled with AT&T's Wireless MailFlash software that allows electronic-mail messages to be sent directly to an alphanumeric pager.

Also integrated is AT&T's document conferencing Vistium Share collaboration software that allows remote users to work together in real time on the same file. All systems have integrated phones, answering capabilities and other communications hardware.

OS/2

CONTINUED FROM PAGE 41

also lacked support for our Hewlett-Packard Co. printers, but we were able to correct the problem by loading the Windows drivers directly.

For this test-drive, we installed the full pack via CD-ROM on an IBM PS/2 ValuePoint Model 6384. This is a 66-MHz Intel Corp. I486DX2 Industry Standard Architecture system with 16M bytes of RAM and a 325M-byte hard drive. The system also contains an IBM Token Ring adapter and integrated drive electronics-based internal double-speed CD-ROM.

After we inserted the CD and Install Diskette 0 and powered on the PC, it was recognized by the CD-ROM drive without any patches. We reformatted the hard drive with a File Allocation Table and selected the Custom installation option. The installation proceeded without a hitch. One last shutdown and reboot later and we were finished.

Now for the network. We loaded the IBM Network Transport Services/2 LAN Adapter and Protocol Support (LAPS) Version 1.01 via diskettes. After we configured LAPS for the Token Ring adapter, IBM Communications Manager/2 (CM/2) Version 1.1 was loaded via diskettes. After we configured CM/2 for host access, we loaded the Novell, Inc. NetWare Requester for OS/2 Version 2.11 via diskettes. We then configured the Requester for Global session access to our NetWare 3.11 and 3.12 servers.

Almost three hours later — with a few interruptions — we were finally ready to start loading applications. We loaded the following:

- Symantec Corp.'s Act 2.0.3 for Windows.
- Clear Software, Inc.'s AllClear 3.05 for Windows.
- Datastorm Technologies, Inc.'s ProComm Plus 2.01.
- Traveling Software, Inc.'s LapLink V.
- IBM's Works, HyperAccess Lite, FaxWorks and System Information Tool.

On the network we accessed the following:

- WordPerfect 6.1 for Windows.
- SoftKey International, Inc.'s Calendar Creator Plus 2.0 for Windows.
- Software Publishing Corp.'s Harvard Graphics 3.0 for Windows.
- Lotus Development Corp.'s Lotus 1-2-3 2.0 for OS/2.
- Lotus Notes 3.1.5 for OS/2.

We loaded the BonusPak applications first. The installation went fine. BonusPak application installs are done by selecting the application to be installed from a menu. That's fine, but some applications require a reboot to complete, and each must be selected individually. A better integrated applications install would be preferable. The applications themselves seemed to work well.

We next tried the network applications. WordPerfect 6.1 for Windows is the newest, and it has the Workplace Shell integration Tools to boast about. We started a 386-enhanced full-screen OS/2 for Windows session and ran the WordPerfect setup program.

The setup ran fine. We started WordPerfect, and an information screen popped up to tell us that because we're using OS/2, we should load the Workplace Shell integration Tools. We closed down the Windows session and started the integration tools install from the desktop.

One shutdown and reboot later, we could run WordPerfect 6.1 seamlessly from the desktop. We started WordPerfect, minimized it, and the first problem occurred. Some fonts on the desktop weren't quite right. The other network applications installed without any problems.

Now for those pesky local applications. To get the data from our old PC, we loaded LapLink V first. We started it in a full-screen DOS session on both the new and old PCs, enabled network connections and transferred data and ProComm Plus across the network.

A full pack of few problems

After using Full Pack for almost two weeks, we've had only a couple of problems, the first being the WordPerfect desktop font issue. The second problem was that although OS/2 Warp supports our network printers — an HP LaserJet 4SI and HP DeskJet 1200C — for some reason OS/2 for Windows doesn't have drivers for them. We loaded the standard Windows drivers for both printers and haven't had a problem.

Overall, the enhanced functionality and performance have been worth the wait.

Dombek is information center manager for distributed computing at Trustmark Insurance Co. in Lake Forest, Ill.

Unix-on-Intel

SunSoft debuts low-end offerings

By Jean S. Bozman

SunSoft, Inc. got one foot in the low-end Unix-on-Intel market in 1992 when it acquired Interactive Systems Corp. and another with Solaris x86 for Intel. Last week, it expanded its low-end offerings, introducing Solaris 2.4 operating system products for character-based Intel Corp. PC servers.

The new products will compete directly with Unix-on-Intel systems from The Santa Cruz Operation (SCO) and Novell, Inc.'s UnixWare 2.0.

Head-to-head

SunSoft is heading into a $250 million Unix-on-Intel market dominated by the $184 million SCO. It is also facing a challenge from Novell, which revamped its UnixWare product for multiuser symmetrical multiprocessing servers this year.

A different approach

The new Solaris Base Server and Solaris Network Server, priced from $495 and $695, respectively, for a two-user license, are intended for use in corporations with many branch operations, such as retail chains and fast-food restaurants.

Typically, these firms use packaged applications that run on top of Unix systems and databases, analysts said. Users will see character-based screens, not graphical user interfaces (GUI), and pull-down menus rather than multiple Unix windows, SunSoft said.

To make Solaris 2.4 code fit onto PC servers, SunSoft reduced the required memory to 6M bytes of main memory and 45M bytes of hard disk memory. "That is half what the mainstream version consumes," said Tony Iams, an analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. "This involved eliminating GUI and windows support and some special kernel tuning."

Jim Brennan, senior director of syndicated services at WorkGroup Technologies, Inc. in Hampton, N.H., said Base Server and Network Server are examples of SunSoft's intention to grow sales by packaging Solaris for out-of-the-box installation.

Playing to win

SunSoft will aim its sales at large corporations and value-added resellers (VAR) that resell Intel multiuser PCs with branch-automation software — pushing into a market dominated by SCO, analysts said.

Competitive pricing will be one way SunSoft attempts to win over SCO and Novell VARs. The Solaris Base server is also SCO binary-compatible, enabling easier porting of packaged applications.

"A lot of these resellers overlap," explained Michael Sears, director of marketing for the Solaris products group. "We will have aggressive pricing to make it easy for them to be successful on the Solaris base."

Theft

CONTINUED FROM PAGE 41

top stolen while waiting in line at the airport — he took his eyes off his bags for what he thought was less than a minute. Another cohort was giving a presentation in a hotel using his laptop, took a five-minute break, came back, and the laptop was gone."

Even more mundane, travelers sometimes just leave their computers in hotel rooms, airplane storage bins and taxis, O'Neil said. "These embarrassing situations may lead to the laptop being returned, yet the data may have been compromised."

Computer parts are becoming hot targets as well, with companies reporting that thieves — usually insiders — remove power supplies, memory chips and other parts to sell them on the black market or to replace defective parts in their home PCs. "Weight for weight, computer chips are worth more than platinum or gold," said Stephen Cobb, a consultant to the National Computer Security Association in Carlisle, Pa.

Cobb said a security official at a large telecommunications firm recently pleaded for advice on a CompuServe on-line forum after losing 24M bytes of RAM from Apple Computer, Inc. Power Macintoshes at the company. But Cobb said protecting computers of that type is not easy. "It has no screws holding the lid on," he said. "It's a candy box."

According to Jim McMahon, supervisor of the high-technology crime detail at the San Jose (Calif.) Police Department, as the theft of components has skyrocketed, so have insurance premiums in the manufacturing and distribution chain. This hits end users even if they have never experienced a theft directly. "On a $2,000 PC, you are paying $125 to $150 extra to cover theft losses," he said.

Police recently charged a former employee of IBM with theft of a ThinkPad computer and several thousand dollars in parts from manufacturing facilities in Research Triangle Park, N.C. An IBM spokesman said the company had taken numerous precautions against theft by employees, including the installation of metal detectors at factory exits.

"This kind of crime is increasing rather rapidly as computers get smaller," said Rick Buchanan, a captain at the Durham, N.C., sheriff's office who is investigating a rash of thefts from Research Triangle Park offices. He said computer thefts are more than twice as common as two years ago and that 95% are the work of insiders.

Thieves apparently have little trouble disposing of hot hardware. Parker said a California client lost $1 million in hardware, data and business from a series of gang thefts. The gang leader's 90-year-old parents were found to be fencing the computers through an antique store in San Francisco. Cobb said he has seen RAM chips for sale at a flea market in Scotland.

Others said thieves also use electronic bulletin boards to find fences for hot hardware.

Preventive measures

What to do? The following is some advice from the pros:

- Encrypt data stored on mobile computers. Use software that displays your name and telephone number when the machine is booted, and use a corporate label that, when removed, reveals a "stolen computer" message.
  — William Murray, an information security consultant to Deloitte & Touche
- Keep good records of employees' belongings. Conduct training and education programs that make employees feel personally responsible for their gear.
  — Tony Harte, supervisor of PC hardware at USA Group
- Make it harder to remove parts in office PCs by using tamper-proof caps over exterior screws. Use clamping devices to hold down equipment.
  — Stephen Cobb, a consultant to the National Computer Security Association
- Keep PCs on-line at all times, sending "I'm still here" messages to the server. At night, if the messages stop, the server can automatically call 911 with a cry for help and location of the burglary. Use lock-down devices. PCs should have a serial number and a software command that makes the serial number available to a program.
  — Donn Parker, senior consultant for information security, SRI International
- Use cable locks and property identification nameplates. Stressing awareness of the issue with employees is key. Treat your laptop as you would treat valuable personal property such as jewelry.
  — Jim O'Neil, information security manager, Pacific Bell

[illegible]

Sun Microsystems Computer Corp. has announced the SPARCstation Voyager portable workstation.

According to the Mountain View, Calif., company, Voyager is a 13-pound unit with a flat-panel screen. Some units use 810M-byte hard drives instead of the original 340M-byte drives.

Voyager prices range from $8,995 for a monochrome unit with 16M bytes of memory and a 340M-byte hard drive to $13,995 for a color Voyager with 48M bytes of memory and 810M bytes of hard disk storage.

▶ *Sun Microsystems Computer*
(415) 960-1300

SunDisk Corp. has announced a 175M-byte mass storage card.

According to the Santa Clara, Calif., firm, the capacity of the new flash-disk cards increases to 350M bytes with compression software.

The Type III PC card also comes in 80M- and 110M-byte versions. They are compatible with SunDisk's Type II cards and employ the same advanced 16M-bit flash memory chips.

The 80M-byte card costs $1,760, the 110M-byte card costs $2,172, and the 175M-byte card costs $3,245.

▶ *SunDisk*
(408) 562-0500

Tracker Software, Inc. has announced Tracker for Windows, time and contact management software.

According to the Minneapolis firm, Tracker for Windows integrates time and contact management with communications, network tools and response management capabilities.

The product includes a word processor, macro facility, electronic-mail interface, telephone auto dialer, global clock, fax utility and calculator.

Tracker for Windows costs $499.

▶ *Tracker Software*
(612) 525-9502

The Plant Software, Inc. has announced E-Glue 2.0, an electronic note utility for Microsoft Corp.'s Windows and Windows NT.

According to the North Vancouver, British Columbia, firm, E-Glue 2.0 lets users attach electronic stick-on notes to software documents similar to paper stick-on notes.

The notes can include text, sound, video, graphics and animation. A network capability lets users send notes via Microsoft Mail or Lotus Development Corp.'s CC:Mail.

E-Glue 2.0 costs $69.

▶ *The Plant Software*
(604) 988-6121

Product shorts

Seagate Technology, Inc. has announced the Decathlon 1080, a 1.08G-byte disk drive targeted at supporting PCs running 32-bit applications. The drive features low power consumption and off-loads data transfer management to free space for seek and look-ahead read caching tasks. Cost: $345. Seagate Technology, Scotts Valley, Calif. (408) 438-6550. . . . **Nissei Sangyo America Ltd.** (NSA) has announced the SuperScan Supreme 21XV, a digitally controlled, multiscanning 21-in. monitor geared to imaging and graphics environments. Cost: $2,295. NSA, Westwood, Mass. (617) 461-8300.

WORLD'S
HOTTEST
SERVER?

For 1200 dpi printing,
there's really only
one choice.
There are, however,
several options.
The new Optra family
from Lexmark.

Low-cost fault tolerance ships, 53
Microsoft readies SNA server update, 81

IBM fills holes with server pair

By Jaikumar Vijayan

■ As the IBM PC Co. tries to regroup after a less-than-sterling performance in 1994, its server division last week unleashed two new products aimed at the middle and the high end of the PC server market.

The IBM PC Server 320 and PC Server 720 represent IBM's best near-term chance at regaining lost ground in a business where it has ceded vital market and mind share to aggressive rivals such as Compaq Computer Corp. and Hewlett-Packard Co., observers said.

"They have woken up from a deep sleep. It looks like they finally have something to work with" in the server market, said David Strom, president of David Strom, Inc., a consultancy in Port Washington, N.Y.

"These products definitely keep IBM in the game," said Steve Kleynhans, an analyst at Meta Group, Inc. in Toronto. "They smooth out some gaping holes IBM had in [its] server line."

Changing times

The new server announcements come at a time when IBM's server division has almost completed the wrenching consolidation to its new facilities in Raleigh, N.C. According to William Huke, IBM's vice president of server systems, only about 15 employees of the server unit remain at IBM's testing facilities in Boca Raton, Fla.

High and middle

While the 320 is positioned between the PC Server 300 and Server 95, the new 720 comes in at the very top of IBM's PC server line and offers superserver-class performance, according to IBM.

The symmetric multiprocessor-enabled 320, which is based on Intel Corp.'s 90-MHz Pentium chip, is upgradable to two processors and comes with 256K-byte Level 2 cache and 16M-byte parity memory upgradable to 256M bytes. The system features an array controller option, nine drive bays and a maximum of 27G bytes of internal storage capacity. A six-bay hot-swap shell option allows for removal of failed hard disks while the system is running.

The 320 supports eight expansion slots — two Peripheral Component Interconnect, one PCI/Extended Industry Standard Architecture and five EISA.

Meanwhile, the top-of-the-line 720 is capable of supporting up to six 100-MHz Pentium processors and comes with 512K-byte Level 2 cache, up to 1G byte of 64-bit error checking and correcting memory and a 132M-bit PCI bus.

Scalability is provided through features such

Servers, *page 52*

NetWare for SAA aims high

Version 2.0 boasts tighter directory integration, increased capacity

By Laura DiDio

Novell, Inc. recently released the latest version of its NetWare for SAA (Systems Application Architecture) network-to-host software, which now gives users the ability to fully integrate with NetWare 4.1's Directory Services. It also quadruples the number of simultaneous sessions supported.

In addition to the increased capacity, NetWare for SAA 2.0 offers users first-time support for load balancing sessions across multiple IBM host data links and multiple NetWare for SAA servers, according to Doug Kernan, director of marketing at Novell's Network Infrastructure Division in Sunnyvale, Calif.

NetWare for SAA is a 32-bit gateway introduced in 1991. It was designed as an application platform to support distributed LAN-to-IBM host applications as well as 3270 and 5250 connectivity, Kernan said.

The latest version takes IBM host connectivity several steps further by incorporating improved installation and management capabilities as well as support for the IBM AS/400 Operating System 3.1 and Client Access/400 applications, Kernan said. It also includes expanded support for TCP/IP connections such as TN3270 terminal emulators and TCP/IP-based AS/400 clients.

It gets easier

To ease network administration and management tasks, Novell has added a graphical Windows-based configuration utility to configure NetWare for SAA servers. Network managers can point and click on a series of icons representing the host systems to configure their data links, host profiles and user sessions, said Daniel Arra, Novell's product manager of IBM connectivity.

"NetWare for SAA 2.0 is also more tightly integrated with NetWare Directory Services, which makes it much easier for network managers to configure their networks, while end users get transparent access to IBM hosts," Arra said.

NetWare for SAA 2.0 pricing

Concurrent users	Price
16	[illegible]
64	$5,995
128	[illegible]
254	$14,995
508	[illegible]
1,016	$34,995

Early beta users agreed. And they were especially enthusiastic about two enhancements: support for up to 2,000 concurrent sessions and automated configuration capabilities, which cut administration time. So far, the users said, there are no major glitches in the new connectivity software.

"We're generally pleased with the overall performance of NetWare for SAA 2.0. There are no 'gotchas.' It makes installation easy and foolproof," said Joe Tucker, technical analyst at Portland General Electric Co. in Portland, Ore.

The utility company is using the product to provide its 1,900 NetWare 3.x users with connectivity to IBM host machines. Tucker reported that SAA

NetWare, *page 52*

Ford test-drives video links

By Jean S. Bozman

Breaking down the barrier of miles, Ford Motor Co. is rolling out interactive video links among seven design centers worldwide. To ease collaboration among its engineers, Ford is using high-speed, secure leased lines on a private network to connect Silicon Graphics, Inc. (SGI) workstations running multimedia software.

The network will eventually allow workstation users with several types of SGI workstations to participate in on-line videoconferences from their desktops. Initially, however, designated low-end SGI Indy workstations at each site will handle the on-line videoconferencing, supplementing an older, dedicated PictureTel Corp. videoconferencing system. The network is expected to reduce travel time, speed product review cycles and reduce costs, Ford officials said. The company said the system may also reduce the need to relocate engineers to other sites.

Tomorrow, the world

For users, the on-line interactive editing process will speed design changes and boost collaborative engineering.

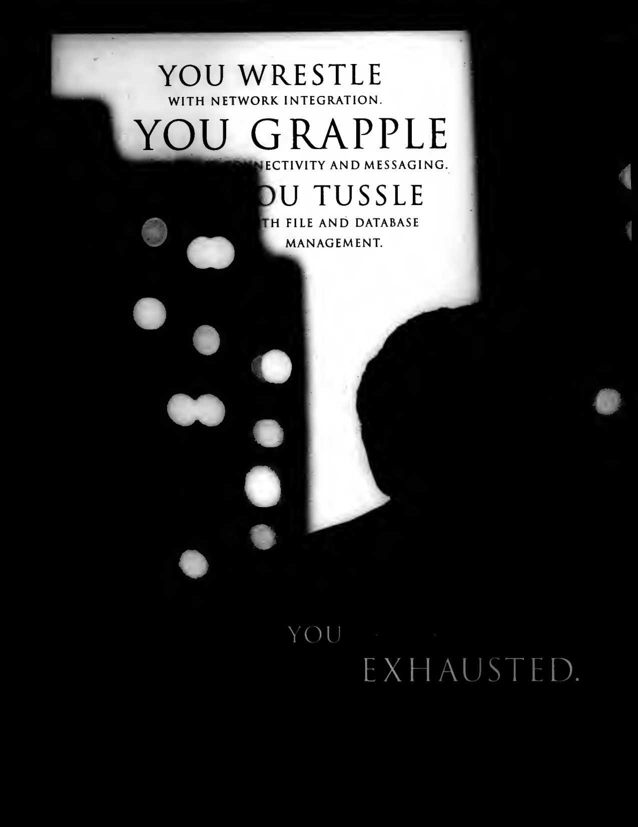
"The kind of dialogue we need to have has always been the same," said Giuseppe Delena, chief designer at Ford's Studio 2010 Computer Aided Industrial Design (CAID) unit in Dearborn, Mich. "Now we're going to accomplish it in a different way." Industry analysts estimated the move, combined with other automation under a companywide technology update program called Ford 2000, will save Ford millions of dollars on the multibillion-dollar launch of a brand-new car line.

High-speed T1 links between Ford's Valencia, Calif., design studio and its Dearborn headquarters are already operational, but it will take months to extend the interactive system to all seven centers, Ford said. The lines are secured, and the data is encrypted to protect corporate information assets, Ford said. The other five design centers are in Cologne, Germany; Duoton, England; Turin, Italy; Hiroshima, Japan; and Melbourne, Australia. Links to England and Germany are in place, but they do not yet host full-scale videoconferences.

Valencia was the beta-test site for the workstation-videoconferencing system. "We are beyond the test phases," said Richard Hutting, executive designer and president of Ford's

Ford, *page 81*

Ford's *interactive video network will link design centers in seven locations worldwide*


YOU WRESTLE
WITH NETWORK INTEGRATION.
YOU GRAPPLE
ECTIVITY AND MESSAGING.
OU TUSSLE
TH FILE AND DATABASE
MANAGEMENT.
YOU [illegible]
EXHAUSTED.

Take heart. There's a new, integrated family of server software called Microsoft BackOffice. And it will empower you to do your job. With authority.

Imagine what you could do with an integrated information system.

You could finally break free of clumsy business systems. You could respond more quickly to changing business needs. You could enable the people you work with to get the information they need. So they can make better, smarter decisions.

It's called Microsoft® BackOffice. And it's a whole new approach to business computing. Five best-of-breed products that combine to form an integrated information system. One complete, seamless client-server network based on Windows NT™ architecture that will enable you to create the next generation of information applications. At last.

You start with the network operating system–Windows NT Server. After that, it's easy to add database management (Microsoft SQL Server™), messaging (Microsoft Mail Server), host connectivity (Microsoft SNA Server), and systems management (Microsoft Systems Management Server). You can forget struggling for days to get things up and running, because [illegible] optimized to work with Wi[illegible]

Microsoft Windows NT Server: *The network foundation for a new generation of business applications. It is a multipurpose network operating system that can deliver application server capabilities without compromising file and print service performance.*

Microsoft SQL Server: *The high-end database platform at the center of a complete client-server architecture for information management.*

Microsoft SNA Server: *Makes it easy to connect PCs to IBM mainframes and AS/400s.*

Microsoft Mail Server: *The heart of a complete messaging [illegible] makes it easy to communicate with anyone, anywhere.*

[illegible] *for managing networked PCs.*

[illegible] *family licensing simplifies client-* [illegible] *includes one Client Access* [illegible] *acquire* [illegible] *any server.*

[illegible] server, you'll use a consistent [illegible] all products. And [illegible]

[illegible] dware, [illegible] 32-b[illegible] [illegible] dows [illegible] [illegible] estm[illegible] [illegible] ct us [illegible]

[illegible] ecis[illegible] [illegible] ain [illegible]

WHERE DO YOU WANT TO GO [illegible]

Servers

CONTINUED FROM PAGE 49

as 22 device bays, 18 of which are hot-pluggable, and seven PCI or Micro Channel Architecture (MCA) combination slots that provide a bridge between IBM's proprietary architecture and the open PCI architecture.

"IBM has finally gotten over their [MCA] religion. It's about time," Strom said. There are currently an estimated 9 million users of IBM's MCA.

Common features

Both new servers also come with high availability and reliability features such as disk-failure prevention via predictive failure analysis, RAID support and redundant power supplies.

Both systems come integrated with an enhanced version of IBM's NetFinity server management software with features such as automated system alerts, including Simple Network Management Protocol alerting, and links with IBM's LAN NetView and NetView/6000 and HP's OpenView environments. The desktop managment interface-complaint tool includes capabilities such as asset management and user-definable alerts.

"It's a good product," said Ron Blankenship, a network engineer at Integrated Data Systems in Chantilly, Va. Using the product's customizable alerts, the company has written a progam that manages and monitors Lotus Development Corp.'s Notes over the corporate network.

Other integrated management tools that come with the new servers include ServerGuide installation and configuration software. IBM last week announced a PC Server Startup program under which it will work with vendors such as 3Com Corp., Madge Networks, Inc., Microsoft Corp. and others to provide what it called "one-call support" to customers.

NetWare

CONTINUED FROM PAGE 49

2.0 also automates the configuration process.

"Prior versions such as NetWare for SAA 1.3 required manual checks when I did setup," Tucker said. "SAA 2.0's auto-execute capability saves me some time but more importantly eliminates manual finger checks on my part to check configuration parameters. The result is fewer system errors."

Pushing the limit

Jerry Verden, information systems operations manager at Snyder Oil Corp. in Fort Worth, Texas, a beta site with 500 users on its network, said NetWare for SAA 2.0 represents a "great improvement" over previous versions.

"Configuration is much easier. And I especially like the fact that Synder Oil is no longer limited to several hundred concurrent sessions. We can now scale up to 2,000 sessions," Verden said. "The ability to kill sessions directly from the SAA 2.0 gateway also eases administration headaches."

Base line

The installed base of NetWare for SAA users rose to 60,000 at the beginning of 1994, according to statistics from International Data Corp. in Framingham, Mass.

While Novell now supports AS/400 Version 3.1, the company will also continue to support IBM's OS/400 Version 2 and PC Support/400 client software, Arra said.

NetWare for SAA 2.0 also includes a router that supports the ClientAccess/400 Windows 3.1 and third-party 5250 emulators, Arra added.

Another crucial feature is a server-based Hot Standby facility that lets network administrators specify backup host links that will start automatically if a NetWare for SAA server fails.

NetWare for SAA 2.0 is shipping now. The package comes bundled with runtime versions of both NetWare 4.1 and 3.12.

Vinca, Tricord offer low-cost fault tolerance

By Jaikumar Vijayan

For server users who seek 100% availability but have been unwilling to foot the bill for Novell, Inc.'s NetWare System Fault Tolerance (SFT) III, a new product from Vinca Corp. could provide a lower-cost option.

Vinca, an Orem, Utah, supplier of storage networking products, has started shipping its StandbyServer 32, a NetWare-to-NetWare server mirroring system. StandbyServer 32 was designed to copy files directly from a main server to an on-line secondary server using a high-speed link.

StandbyServer 32 comes with a runtime NetWare module, two 32-bit adapter cards for Extended Industry Standard Architecture, Industry Standard Architecture or Microchannel Architecture and a bidirectional server-to-server interface cable. Prices range from $2,599 to $2,999, which analysts said is one-tenth to one-fifth the price of a full NetWare SFT III implementation.

The StandbyServer 32 consists of two link cards connected by the interface cable and a NetWare Loadable Module that allows NetWare to see the drives housed in the second machine as if they were in the main server.

In the event of a primary server failure, or if a server has to be taken down for maintenance, the StandbyServer 32 automatically boots up the standby machine using the original NetWare license. It looks for and verifies the primary server over network links and boots up the standby system in less than a minute, according to Vinca.

[illegible]

- Vinca StandbyServer 32 with runtime NetWare module
- 100-MHz 486DX4 and Intel Pentium processors
- Tricord SCSI controller with support for RAID 0,1,4,5 and 10
- On-line hot-disk sparing, redundant power supply
- Two 32-bit EISA cards with bidirectional server-to-server interface cable
- Price: $24,600

Cost savings

Unlike NetWare SFT III, the primary and standby servers do not need to be identical, but the free space on the secondary device must be large enough to mirror the primary server. This saves costs and gives users some flexibility in deciding what tasks need to be mirrored, a Vinca spokesman said.

"For those who are looking for 24-by-7 availability, this provides a lower-cost option" than NetWare SFT III, said David Cappuccio, an analyst at Gartner Group, Inc. in Stamford, Conn.

While a number of systems vendors have begun to make sure that high-end networked PC servers are available at least 98% of the time, full-server fault tolerance has traditionally been associated with much higher-end systems such as superservers, Cappuccio said.

"This one solves the 2% problem — between 98% availability and 100% availability — at a lower cost than existing options," he said.

"We've been very impressed with it," especially because of the lower costs, said Alan Walker, a microcomputer and network services coordinator at the Institute of Real Estate Management in Chicago. "We looked at SFT III, but the costs were prohibitive," he said.

The organization uses Vinca's StandbyServer 32 as a standby to a primary Dell Computer Corp. server and mirrors most of its core end-user applications such as desktop publishing, imaging, database management, payroll and general ledger accounting, Walker said.

Meanwhile, superserver vendor Tricord Systems, Inc. in Minneapolis announced it will use the same technology in its new PowerFrame StandbyServer 32 series, a collaborative product between the two vendors (see chart above).

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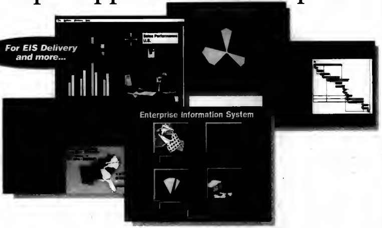
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Introduction

Since the earliest days, the purpose of computing has been to improve the way we work. Getting work done faster, making it easier to do and getting more of it done are the reasons why we've spent so much for so long on so many computer-related things.

We've built massive computing complexes, all-encompassing software architectures and pervasive networks. We've pushed computing power out to the farthest reaches of business enterprises in order to empower more and more people and tried to pull it all back again under one all-seeing and all-knowing information executive. We've devised front-end and back-end methodologies, elegant prototyping and lightning fast code generators. We've purchased packaged products and grown our own. And every few years we've attempted to come up with new organizational models to make our work lives a little easier.

The computing means to this end, of course has been, and continues to be, the software program, the application – that concoction of commands – that enables us to get something done. All too often, I fear, some of us lose sight of this fact, but none the less, we must consider the sobering reality of the software application. All the microprocessors and operating systems in the world aren't worth a boot without the application program. It's the application that helps solve a problem, creates a new business opportunity, brings enlightenment to the individual, helps us do our work better and faster. It's what makes computing real.

This White Paper, the first part of a series on Enterprise Software Directions appearing in both *Computerworld* and *Software Magazine* throughout 1995, is devoted to understanding this wonderous phenomenon, the application program.

Application Development in the Decentralized Enterprise was researched by Emily Kay of Chelmsford, Mass., and Paul Korzeniowski of Malden, Mass., and was written by Larry Marion of Triangle Publishing Services Co., Newton, Mass. The Enterprise Software Direction Series is produced by David R. Brousell, director of Sentry Market Research, a division of Sentry Publishing Co., Westborough, Mass.

In coming months, the Enterprise Software Directions series will focus on the issues users face in systems and network management, the business case for client/server computing and service solutions for client/server. On behalf of my colleagues at *Computerworld* and *Software Magazine*, I invite you to comment on these important topics of the day. I can be reached via MCI mail at 707-3087 or via the Internet at 707-3087@MCImail.com.

Sincerely,

David R. Brousell

Watch for the remainder of the Enterprise Software Directions Series:

Enterprise Systems & Network Management	June
The Business Case for Client/Server	September
Service Solutions for Client/Server	December

ILLUSTRATIONS BY CHRISTOPHER BING

Founded in 1985, Sentry Market Research (SMR) specializes in demand-side information technology research on multiplatform, open software environments in client/server, application development, network management and systems management markets.

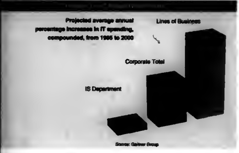
Reducing time to market is the new reality

Part I

Evidence of the new business imperative is everywhere. Chrysler and Ford trim two of the five years previously needed to design and produce a new car, and score stunning revenue and profit gains over less nimble competitors.

Texas Instruments slashes the design cycle of customized logic chips from 180 days to less than two weeks to keep pace with the rapid development of personal computers and other electronic systems. A just-in-time system adopted by Levi Strauss and its retailers boosts revenue and customer satisfaction by replenishing stocks of jeans just before the shelves go bare.

Reducing time-to-market is the new mantra of business. Restructuring business hierarchies into cross-functional process- or product-oriented teams is the method many companies are choosing to realize that goal.



Source: Gartner Group

The conduct of application development is marching in lock step with this team orientation. "There's a tremendous acceleration of change as business becomes more competitive, with shorter product cycles and new industry dynamics," explains John Halloran, formerly managing principal, Nolan, Norton & Co., an IT consultancy based in Boston. "New organizational structures are needed in order for twenty-first century business to include electronic connections with vendors and customers. The old enterprise model, with a hierarchical structure built on functional departments, is breaking down. The new structure will have more of a cross-functional team and process orientation."

Business managers taking control

The core of the restructured organization is the business unit manager. Profit and loss responsibility is being pushed downward to the front lines of business warfare. These field generals rightfully insist on commanding the necessary resources, since they are held responsible for the success of their products. Hence, the rise of the cross-functional team as the basic building block of the new corporation.

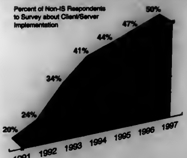
These teams consist of individuals representing various business disciplines such as design, production, finance, marketing and IS. Team members may not all be in one building, or even in the same country; some team members may be contractors rather than full-time employees. Their assignments may shift suddenly as business conditions change.

The one constant of cross-functional teams is their need for IT as a link between team members, the rest of the enterprise and the market. "IT must help organizations provide a cross-functional view of their processes, a global view in real time," explains Halloran.

In this new business world order, IT is viewed as more than just a productivity enhancer for clerical tasks. Instead, IT provides the most expeditious way to identify and take advantage of potential market opportunities. "For three years running our surveys have found that the number one issue of technology directors is fast-cycle delivery," explains Nicholas Vitalari, executive director of the Cambridge, Mass.-based Summit program of CSC Index, which specializes in strategic business and IT consulting.

"More and more companies view systems delivery as a core business process," explains Vitalari. "What they are doing is putting their top business people in charge of making sure that the complex of systems, technology and business capabilities is delivered. Today business people drive systems delivery."

The restructuring of corporate America and IT spells the end of the old paradigm for application development. It also spells the end for IS management at many enterprises. "The restructuring of organizations is happening to enable change," notes Duncan McClain, director, worldwide marketing, of Texas Instrument's software business unit in Plano, Texas. "Management of IT is one of the tough issues corporations face in making this happen."



By 1997, lines of business will account for 50% of all corporate client/server computing.

Source: Sentry Market Research

IS managers, like many other white- and blue-collar workers, are falling victim to business process re-engineering programs that sacrifice manpower in their quest to downsize companies and create leaner, more survivable organizations.

Faster System Development Dominates IS Priorities

Most Important Issues Facing North American IS Managers

1	Faster system development	
2	Staff skills development	^
3	Developer productivity	—
4	Client/server platform development	^
5	System development re-engineering	
6	IT justification	
7	Information architecture development	
8	Strategic IT focus	—
8	Cross – functional team support	
10	Identify and implement best practices	^

Rapid application development to support a more dynamic business environment has been the number one issue facing North American IS managers for the past several years, according to polls by CSC Index. Issues with a ^ indicate rising interest since 1991, while issues with a — are declining in importance.

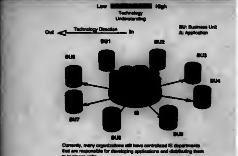
Source CSC Index

The new development paradigms

Part II

The traditional approach to application development is on the wane. Centralized IS development teams writing applications for the various business units created delays and systems that did not meet the users' needs. Four new approaches are competing to replace the old model.

The first approach used by some leading organizations consists of a smaller IS department concentrating on utility functions, such as managing the local- and wide-area networks, and creating and managing standards and training. Core systems development remains the province of the IS department, and application developers report to IS management, but those developers have a dotted line relationship with specific business units.



Currently, many organizations still have centralized IS departments that are responsible for developing applications and distributing them to business units.

Source: Gartner Group

Under the second new approach, the smaller IS department concentrates on utility functions, while managing standards and boundaries established by business unit technology leaders. Application developers report to business unit managers, but with a dotted line relationship to the core IS organization.

The third and most radical approach to IT management has each business unit absorbing most if not all of the aspects of the IS organization necessary to carry out its agenda. The remaining centralized IS functions are either managed by a technology steering committee, outsourced or some of both.

The New Model: Situational Management

The approach most likely to succeed will exist in a new IT environment because the proponents of centralized and decentralized IT have converted to a synthesis of these two methodologies. The new model decentralizes application development and other strategic IT initiatives, giving control to the lines of business and their end users.

Meanwhile, the more tactical network and infrastructure operations and standards-setting functions reside in a core IS department supervised by a lower profile manager. Overall policy is determined by a steering committee consisting of the IS manager, business-unit chiefs and senior enterprise officials.

That, at least, is the theory expounded on by consultants. In practice, though, IS professionals say implementing such a heterogeneous structure is keeping them awake at night. "Trying to determine how a company should decentralize functions is a major issue for most corporations," says John Kinnamon, systems engineering manager, Electronic Data Systems in Detroit. "They need to push computing [illegible] Application Development [illegible]

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Susan Ryan, *InfoWorld*

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Delphi Facts

Native code compiler for high-performance applications	✓	–	–
Creates standalone, redistributable .EXEs and DLLs	✓	–	–
No runtime interpreter DLL required	✓	–	–
Fully object-oriented programming language. Provides optimal code reuse	✓	–	–
No external tools necessary to build new components or extend environment	✓	–	–
Combines high-performance compiler, visual environment, reusable components, and scalable database tools	✓	–	–
Robust exception handling	✓	–	–
ReportSmith® "live" data reporting	✓	–	–
Local ANSI SQL-92 engine for server independent client/server development	✓	✓	–
Client/server version available	✓	✓	–

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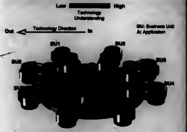
down to the business-unit level but still offer a consistent set of services. Balancing those needs can be difficult."

Indeed. Complex matrix reporting arrangements, the duplication of effort, the cost inherent in decentralization, and other challenges plague top executives and their IS managers. Furthermore, the dynamic nature of client/server and other technologies viewed as the critical enablers of business re-engineering efforts precludes any rigid organization chart. As a result, situational IT management is the new vogue — whatever works today is fine for each business unit or process, but tomorrow things will change.

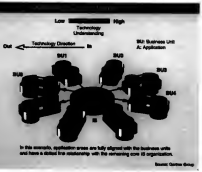
"This oscillation between excessive centralization and decentralization has been going on for years," observes Jim Hansel, vice president for investment systems at UBS Asset Management Inc., in Old Greenwich, Conn. "After a while, corporations will catch on and realize that they have to be a little smarter about this and not just centralize or decentralize. They have to engineer it a little better, and end up with areas of centralization and decentralization."

Consider the IT juggling act these days at Fannie Mae, the quasi-government corporation that purchases mortgages from banks and repackages them as securities for Wall Street investors. In some instances, it takes a decentralized approach. "People who know best what the customers need are closest to that customer," explains Andrew Weiss, vice president of advanced technology for the Washington, D.C. organization.



This figure illustrates core IS component development with the application areas reporting in a matrix fashion to the IS organization, and a dotted line relationship to the business units.

Source: Gartner Group



In this scenario, application areas are fully aligned with the business units and have a dotted line relationship with the remaining core IS organization.

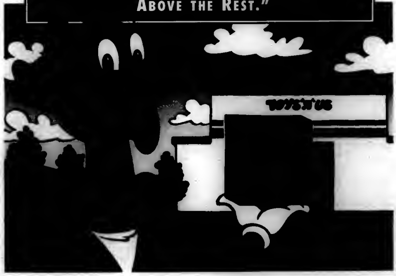
Source: Gartner Group

Taking a Case-by-Case Approach

Other applications will be built by the centralized group. "This will be done prospectively — the group will identify a business need for four different business groups and try to get them all to use it," notes Weiss. "Many companies will totally decentralize IT functions back into units, while others will swing back and become more centralized. It's a constant struggle for us — there's a natural tension and there's no one right answer. We've not figured out exactly how to do it."

Observers say the situational approach at Fannie Mae and other organizations is the most appropriate. "You can't think about decentralization or centralization," contends Nicholas Vitalari, executive director of CSC Index's Summit program in Cambridge, Mass. "Instead, concentrate on what you are trying to deliver, and who needs it. These days those who need the information are in teams that include business people and IS people together, so that saying that IS should be aligned with business units doesn't cut it in a global enterprise. That's too simplistic in a cross-functional team environment."

The IS role is evolving toward a combination of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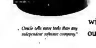

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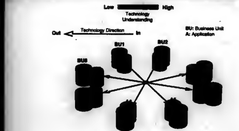


This decentralized approach calls for each business unit to absorb the aspects of the IS organization necessary to carry out its agenda.

Source: Gartner Group

plumber, custodian and general. Maintenance of the local- and wide-area networks is viewed as the key responsibility of the IS department as it is providing the utility functions needed by the business units and other parts of the enterprise.

Consolidating and managing the surviving data centers housing the major transaction processing functions is another IS function. Business unit managers discovered that it was far more cost effective to share the cost of one megacenter than absorb all of the costs of a standard-sized center, as long as IS provided a heavy-duty data pipe for a large flow of data and information between the business units and the processors.

Business unit IT data may also flow back to central IS in some cases. Large servers housing decision support applications and data may be more efficiently managed by a core IT group and are thus natural repositories for large amounts of data.

"There was a big movement to decentralize a lot of transaction processing in financial institutions in the 1970s and 1980s. This was because the operating units using that information needed to control those transactions, so they had the reporting and decision support information to make good business decisions," recalls Greg Stratis, partner, performance improvement consulting, Ernst & Young LLP, Columbus, Ohio. "Now, because of client/server technology, they're starting to consolidate and centralize transaction processing to get costs down. Accounts payable benchmarks, for example, show that it could cost some companies as much as $5-$6 to process each check. The shared service center concept could get that down to 80 cents. Meanwhile, through client/server computing, everyone has access to that central information, and the operating units can tailor reports and pull out the data needed to run that specific business."

Many firms are centralizing servers to simplify management in instances where several units or functions share information. "Bank of Boston now is in the process of centralizing servers," notes Michael Lezenski, the bank's executive director of technology and system services, and chief technology officer. The bank is rolling out a variety of client/server applications in each of its 400 branches, and each branch will have two servers, one for all of the data and the other for all of the applications.

"We're already seeing a backlash as companies realize the decentralization pendulum has swung too far," adds the head of corporate MIS of a major midwestern manufacturer. Her corporation decentralized IS to the business units and to large staff functions, and these mini IS departments have assumed control and consolidated many departmental servers.

Managing standards is another function for the core IS group, but here too the approach is changing. While the old IS organization may have tried to set and enforce standards, the new paradigm calls for collegial conformance to standards determined and agreed to by the business unit managers and their IS deputies.

New Success Measures

Situational management spells the end of traditional IS performance metrics. System performance, programmer code-writing productivity and other benchmarks historically relied upon by IS managers are clearly viewed as secondary or irrelevant by business unit managers. The bottom line emphasis of the business units becomes the *raison d'être* of the decentralized IS staff, especially for application developers.

"You can't do traditional cost-benefit analysis in this context," warns Judith Hurwitz, president of Hurwitz Consulting Group, Watertown, Mass. "The measure of cost-benefit is determining if, over the long term, that application or tool can scale either up or down to solve a business problem that depends on the rate of change of business."

Donald DePalma, senior industry analyst with Forrester Research of Cambridge, Mass., adds that fast response to business conditions is paramount. "It used to take several years to develop an application, and it would last for eight to 10 years," he recalls. "Now, it takes weeks or months to develop an application and it lasts two or three years, though the life cycle depends on the tactical or strategic nature of application and business conditions, not technology. Therefore, the quality and maintainability of an application counts, not the quantity of code written. Module re-use is key, too, along with bullet-proof routines that last for years and are easy to modify."

Garber Travel Arrives at Development Nirvana

Rock Blanco typifies the new generation of business-savvy IS managers — long on strategic vision and short on staff. In the seven years he has been vice president of information technology at Garber Travel Services in Cambridge, Mass., he has dismantled a mainframe-based, centralized IT operation, built a PC LAN and client/server infrastructure, farmed out application development, outsourced basic services to American Airlines' Sabre system and reduced the staff and IS cost by more than one-third.

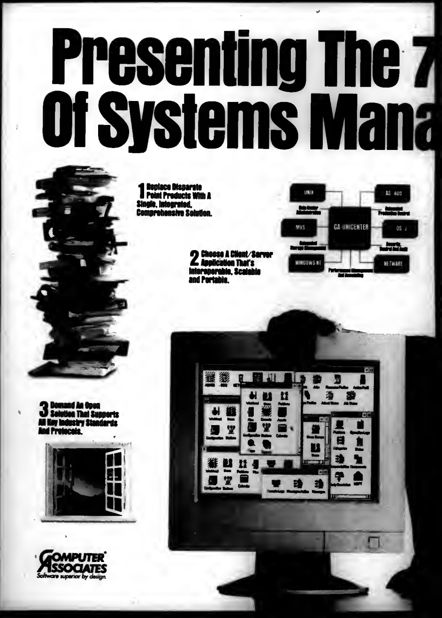
Now the travel agency, with revenues in excess of $200 million, has an IS budget of less than $1 million, a stunning ratio for an information-dependent service company.

The downsizing moves give Blanco the opportunity to help end users and business units develop profitable products and services. "The key focus that IT had in the 1980s was personal productivity," he says. "In the '90s, the shift is to workgroup technology, which involves the management of enormous amounts of information from all different types of hosts and sources, and people working together in a network."

Helping users and department managers build their own reports and applications using data and a variety of groupware-enabled applications, such as Lotus Notes and Groupwise from Novell, is how Blanco views his role. "I see IS becoming more information brokers and/or information service bureaus," he explains. "It's not so much picking and designing end-user applications, but assisting end users to get information from various sources and organize and manage it. Our job is to provide that type of access to end users who are either in a workgroup environment, working from home or wherever — the extended workgroup of today.

"That puts IS out of being the development shop of new applications as well as deciding on platforms and products. We want to keep our MIS department small so we view third parties as part of our team."

Small, but creative. Blanco has been working with business managers to develop a host of services for Garber's customers. The company has already developed a remote travel-information service that is accessed via various networks by any type of end-user device. "In the future, the key will be distribution of information regardless of the interface into the network — it may be personal digital assistants, beepers, cellular phones or laptop computers," he predicts.



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Data Center Administration
Automated Production Control
MVS
CA-UNICENTER
OS 2
Automated Storage Management
Security, Control And Audit
WINDOWS NT
NETWARE
Performance Management And Accounting

ERROR
SECURITY VIOLATION

CA-Unicenter

Too many choices?

Part III

"I urge methodology agnosticism," says Donald DePalma, senior industry analyst with Forrester Research of Cambridge, Mass. "What works for one group may be impenetrable to others. Also, client/server is about diversity — it plays to the strengths of the players. There may end up being multiple methodologies in a company, one for each line of business."

Judith Hurwitz, president of Hurwitz Consulting Group, Watertown, Mass., agrees that a variety of approaches should prevail within an organization. "Common sense should be a key part of a methodology," she says. "An organization should understand its decision-making steps and bring the essence of those steps and rules into an application to solve a business problem. Also, methodologies change based on the tools used."

Joint application development, rapid application development and other methods are IT-centric in a world that is quickly becoming line-of-business centric. In this new environment:

- A few end users and line-of-business developers form a team to develop an application's specifications
- Initial prototype schematic design developed
- Schematic converted into simple point-and-click prototype using end-user tools
- A few screens and routine linkages presented to users
- After team gets feedback from users, prototype is re-iterated
- Further presentations and re-iterations
- Consultation with central IT developer/consultants to identify potential improvements and conformance to existing standards
- Prototype converted to finished application
- User review and sign-off
- Application loaded onto servers

Source: Patricia Seybold Group

Indeed, application change should be expected instead of vilified. "Prototyping with the business should be done so they see how it works, try it, and change it," advises Nicholas Vitalari, executive director of the Cambridge, Mass.-based Summit program of CSC Index. "Work off a learning experience. Applications for a decentralized, business-unit environment are much more incremental than monolithic — they evolve over time."

Multiple Operating System Support

A recent survey of the client/server market conducted by Sentry Market Research (SMR) finds that the typical IS shop supports four operating systems in 1991 but expects to support 10 by 1996. While four DBMSs are being used in the typical enterprise in 1991, the survey shows that eight will be in use by 1996. That broadening is not surprising, since half of the respondents to a SMR study on application development tools say that users manage development.

Everybody offers choices these days, as IS departments evolve from the limited menu approach of fast-food eateries to the greater variety of a neighborhood pizza parlor. "Our architecture does not limit selections to one choice but offers two or three for most areas," explains Dale Terrell, executive vice president of information services, BancOne Services, Columbus, Ohio. "For instance, we recommend that departments use OS/2, NetWare or Unix for their LAN operating system. We carry that philosophy over to different development tools, too."

Corporate-wide productivity, not just IS productivity, is an overarching financial consideration that tilts the scales in favor of standardizing on more tools rather than fewer ones. "IS should support whatever the users want because they will be more productive with the tools they picked," notes Mitch Kramer, contributing editor to the Boston-based consulting firm, Patricia Seybold Group.

However, enforcement of even a broad array of standards is becoming more difficult. "Lately, there has been a growing number of exceptions," notes a senior IT staffer at a major midwestern equipment manufacturer. "In fact, the IS department is starting to feel a bit uncomfortable about retaining its ability to tie everything together."

Heavy-handed enforcement of standards will not fly, of course. Savvy IS managers in a decentralized environment realize that their authority is derived from the business unit patron. Persuasion, not decree, is the key. "The central areas will have to realize they can't manage by dictate too much," notes Jim Hansel, vice president for investment systems at UBS Asset Management, Inc. in Old Greenwich, Conn. "They have to manage more by education and by almost preaching and trying to convince people to follow corporate standards."

In an era where the business unit with the most profits wins any debate over IT standards, many companies find that a corporate-wide steering committee, typically chaired by the president or chief operating officer, is the final arbiter of standards and exceptions. IS's role is two-fold: help these committees pick an architecture that specifies defacto technologies rather than products, and provide the integration services to link disparate applications.

Grossman's, Inc., the chain of lumber yards based in Braintree, Mass., decentralized its IS operations by business unit and geographical location several years ago. "The company determined that the business benefits of having IS stationed close to each department outweighed any disadvantage from not having everyone work with the same applications," says Michael Bergman, vice president, MIS. "For instance, a company may not qualify for volume discounts because divisions deal with different suppliers."

Basic practicality, not obscure or arcane IT factors, dictates the criteria used to select a client-based, model-driven development environment. Pertinent questions include:

- Does the tool make application development easier?
- How well does the tool integrate with a new development environment or existing applications?
- How well does the tool adhere to emerging standards?
- How modular is the product and the resulting applications it creates?
- Does the tool support cross-platform application environments?
- Can the tool accelerate prototyping?
- How able is the tool to create a variety of application architectures?
- How well can the tool be used to build highly complex applications that support large numbers of users?
- Can the same tool scale down the application for a smaller implementation?

Source: Hurwitz Consulting Group

Fortunately for IS managers and corporations, a handful of products and technologies are becoming defacto standards. "Many shops are gravitating toward Visual Basic from Microsoft and Powerbuilder from the Powersoft unit of Sybase as the end-user application development tools of choice," says DePalma. And while object-oriented technology is on every end user's lips, it was only expected to penetrate one-third of IT shops by the end of 1994, according to the 1993-94 Application Development Tools Market Report by SMR. However, sales of object-oriented programming tools outpace other categories.

"Firms have to position themselves to take advantage of object-oriented technology, since objects can be mixed and matched and are better suited to new application development," insists James Sinur, vice president, application development technologies, Gartner Group in Stamford, Conn. "However, in most cases, the needed infrastructure is not there yet. And there are technical limitations, such as the lack of object-oriented libraries and workbenches."

In addition to object orientation, there is a host of other key feature and function requirements for decentralized application development. Scalability and interoperability remain high on the lists of IS managers as well as business unit officials. "We would like one set of tools that operates on a number of different platforms," says Elazar Harel, director, information systems at UCLA in Los Angeles. "But that capability is not yet available."

Adds Bergman, "Mixing and matching different tools is extremely time consuming because a company will spend most of its time training programmers

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we introduce the way to achieve it.

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Once the requirements of your business change, it is crucial that your information systems quickly adapt. You can't afford to be constrained by multiple platforms/databases, operating

to operate the different tools." Grossman's uses Intelligent Environment's Application Manager. "It offered us fast development time, as much as five to one savings," he notes.

Maintenance of applications developed with end-user-oriented tools has become a problem. "The various tools do not offer easy ways to document how an application operates," Harel declares. "If a programmer leaves, then maintenance can be difficult because no one may know how it operates."

Access to information is becoming more of an issue as cross-functional teams proliferate. Sharing information across workgroups ranked as one of the areas of highest concern among developers polled by SMR last year. "Managing the connections between applications has been an ongoing issue," notes Bergman. "PC users may need access to financial applications running on a mainframe. After we develop those connections, if one division upgrades to a new application, we have to insure they will still be able to access needed information. With the rate of change evident now, ensuring these connections has become an ongoing issue."

Cross-functional application development also is viewed as a necessity, but the tools do not exist. "When the mainframe was the center of application development, the dividing lines between IS and the user departments were pretty clear," says John Kinnamon, systems engineering manager, EDS, in Detroit. "But with the move to network and department systems, making those distinctions has become more difficult. Companies need to build more of a team approach to application development today than they did in the past."

Dueling Tool Approaches: Revlon and BancOne

Cosmetics giant Revlon and BancOne represent two strikingly different approaches to the selection and use of application development tools. BancOne is a rigidly centralized bank holding company, with an IT subsidiary that supplies applications to 80 banks around the country The more creative environment and culture of Revlon has led to a much more involved end-user role.

	Revlon	**BancOne Services**
IS executives	Gene Pinadella, SVP&CIO	Dale Terrell, EVP
User base	3,000	48,000
Size of programming staff	85	900
Corporate structure	Business units	Centralized
Application development	Business units, with IS standards and support	Centralized, "We don't want to support 50 different tools."
Architecture	SNA, NetWare. Unix	OS/2, NetWare, Unix
RDBMS	Oracle, DB/2	DB/2, Sybase, Oracle
Application standards	Canned applications with Visual Data	In evaluation
Software selection process	Power users at departments test IS nominations, report results to IS	Standard architecture, includes 2-3 choices per platform
Who decides?	MIS and end-user committee	Architecture council
Exception process	None	Various management-level approvals required and "occasionally followed."
Who develops applications?	"End users take development initiative — they are responsible for projects."	IS "is responsible for all company development," departments modify according to local needs using standard tools
First client/server development	1993	1991
Client/server application development surprises	"Integration more difficult; demands more training, end-user involvement."	"The difficulty in making all the pieces fit together."

Tools still not mature

Part IV

Reality was never as glamorous as fantasy, but the gap seems to be getting wider in information technology. User views of the benefits of application development tools and client/server software have been souring over the past four years. However, the benefits still outweigh the drawbacks.

"Clearly the audience still has positive perceptions of client/server, but as sites gain experience they also become more critical," notes the 1995 Client/Server Market Report by Sentry Market Research (SMR). The biggest benefit noted in the latest survey is enterprise access to data, with a 4.8 importance rating out of a maximum of 6; in 1992, access received a 5.1 rating. Meanwhile, complexity of network administration and multiple network failure points are considered the two biggest drawbacks to client/server computing, with identical 4.2 ratings. In 1993 they received 3.4 and 3.9 ratings, respectively.

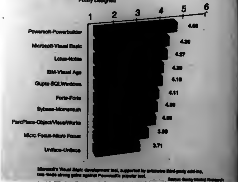
Credibility gaps between vendors and buyers are not new in IT or in other fields, though the extent of dissatisfaction in IT appears to be growing. Kathy Auerbach, senior analyst at SMR, notes that in a recent survey, 62% of the respondents say that they are dissatisfied with their software, up from 39% in the prior year's survey.

Some relative winners are surfacing out of the discontent over the hundreds of application development tools that clutter the market. "Users are gravitating toward a limited set of products," notes Donald DePalma, senior industry analyst with Forrester Research of Cambridge, Mass. Surveys of Forrester's Fortune 1000 clients find that Powerbuilder is used by 62% of the sites as the development tool, while Visual Basic is preferred in 36% of the shops. Smalltalk is used by 15% of those surveyed.

The recent Sybase acquisition of Powersoft is a clear threat to Oracle and Microsoft's quest for toolmarket supremacy. Powerbuilder's popularity in the marketplace extends beyond its core market to the entire application development spectrum: In a recent SMR survey, Powersoft receives high ratings for several functions outside its core client/server realm, e.g., being considered an object-oriented development tool.

"The reception of the tool in the market is so high that it is striking," Auerbach says. "It will be interesting to see how it stacks up against Visual Basic in the next year. VB is coming on like gangbusters."

Sybase's Powersoft buy is not just part of the natural consolidation that takes place in any market with hundreds of players, but rather part of an overall rationalization of products into frameworks that fit the challenging demands of IS managers.



Microsoft's Visual Basic development tool, supported by extensive third-party add-ins, has made strong gains against Powersoft's popular tool.

Source: Sentry Market Research

SOFTWARE [illegible]
Keeping the world s Mainframe applications running strong and swift
And Client/Server systems purring along
COMPUWARE

IS Enables The Virtual HMO at John Deere & Company

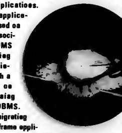
Farm implement maker John Deere & Co. of Moline, Ill. has long been recognized as a pioneer when it comes to implementing information technology.

For more than a decade the company, with 33,000 employees and 1993 revenues of $7.8 billion, has been on the cutting edge in the use of local- and wide-area networks, and state-of-the-art technology in its manufacturing subsidiary as well as in a variety of other units. While other organizations are just starting to experiment with Windows NT from Microsoft, Deere already uses the new operating system in production applications.

Deere's organizational and IS structures are also state-of-the-art. The company is really a collection of independent business units. In addition to the manufacturing subsidiary, Deere has a series of separate finance and insurance subsidiaries, and the IS structure has been decentralized for almost a decade.

"Each subsidiary has its own IS group, which is responsible for developing business applications and various reports," notes Dannie Rebhuhn, manager of training and staff development for John Deere Healthcare, Inc., a health maintenance organization (HMO) providing health care services to more than 300 companies.

John Deere Healthcare has approximately 600 employees. They use PCs and/or 3270 terminals to access data and applications on an IBM 3090 mainframe, IBM RS/6000 servers and PC LANs. Operating systems include Unix, OS/2 and a few new Windows NT applications. Most of its applications are based on Computer Associates's CA-IDMS DBMS running on the mainframe, though a few reside on servers running Sybase's RDBMS. The unit is migrating several mainframe applications to clients running the Access database from Microsoft.



Currently the HMO serves more than 280,000 enrollees using 20 centers in five states throughout the Midwest. Roughly 80% of these people work for non-John Deere companies. However, in this era of the virtual corporation, John Deere Healthcare decided not to do everything itself. Several years ago it subcontracted mental health coverage, including treatment of substance dependency, to the 32 clinics operated by United Behavioral Systems (UBS) of Minneapolis. To avoid paperwork and treatment delays, the two organizations linked their networks.

Knitting together the business parts was a multistep process. Initially, the admissions staff at each UBS office had to manually sort through a print-out of Deere members to determine treatment eligibility. That obviously inefficient system was replaced with a 3270 terminal in the UBS centers linked to the John Deere mainframe. However, skyrocketing telecommunications costs and extensive delays resulted, since the UBS staff was not familiar with the Deere application.

"They had to learn how to navigate through several layers of our screens and interpret the results," recalls Jerry Tappendorf, assistant director of IS at John Deere Healthcare. "It was a slow and tedious process to simply answer a straightforward question — Are you an eligible John Deere patient?" The solution was to replace the dumb terminal and mainframe approach with a wide-area client/server network.

Developers at UBS and John Deere Healthcare used a variety of tools, including Open Environment Corp.'s OEC Toolkit, Powerbuilder from Powersoft and Visual Basic from Microsoft, to link PCs in the clinics to UBS's Unix server and John Deere's RS/6000 server containing its patient files in a Sybase database.

Based on the success of the IS project, John Deere is moving to provide the same type of instant eligibility verification service to all of its clinics and other affiliated organizations. "This application is an extension of our customer service capabilities," explains Tappendorf. "We can give them technology without the complexity."

A worthy accomplishment for all IS managers.

Although there's no rating system for open development tools, there *is* a *standard* unit of measurement.

PowerBuilder® Enterprise has become a yardstick for the entire industry and frankly, no other product measures up. Proof? Tens of thousands of developers are building and deploying real client/server solutions with PowerBuilder Enterprise. Three hundred-plus technology partners are developing solutions tightly integrated with PowerBuilder Enterprise. More than 250 independent vendors are building commercial software packages with PowerBuilder Enterprise. And hundreds of training and consulting partners worldwide are offering developers the service and support that gets them to client/server and keeps them there. Call Powersoft at 1-800-395-3525.

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Microsoft prepares ‘tag team’ SNA Server for NT update

By Stuart J. Johnston
SEATTLE

Desktop PC users who use SNA to access IBM mainframes will gain an array of minor but important new features when Microsoft Corp. releases an upgrade to its SNA Server in the second quarter.

SNA Server 2.11, now entering widespread beta testing, is a complementary product to Windows NT Server 3.51, which will also add support for IBM and Motorola Corp. PowerPC machines.

In fact, SNA Server is "tag teaming with NT 3.51" because it requires the operating system update, also due in the second quarter, said Vesa Suomalainen, general manager of the SNA Server product unit. "The goal is to get this out within a few weeks of NT 3.51," Suomalainen said.

The upgrade will run on all of NT's supported platforms, including machines from Intel Corp., Digital Equipment Corp. and Silicon Graphics, Inc. subsidiary Mips Technologies.

The update is set to be formally announced at a Microsoft conference here today.

SNA Server 2.11 makes no major changes to the core server code. Instead, it contains incremental additions aimed at specific groups of customers, according to two analysts who have been briefed by Microsoft.

A different look

High on the list of additions to the package is a TN3270 server, which to a Unix client makes SNA Server look like a host computer with a TCP/IP protocol stack installed. "The alternative is to install a TCP/IP stack on the host, which is very expensive and consumes a lot of host CPU cycles," Suomalainen said.

Another addition is the inclusion of Open Database Connectivity/Direct Relational Database Access (ODBC/DRDA) drivers for both Windows and Windows NT. These drivers simplify access to host databases, such as IBM's DB2, from PC applications such as Microsoft's Access and Excel.

"A lot of corporations are leaving databases on the mainframes for a lot of reasons, and the DRDA support lets PC users tap into that," said Don Czubek, president of Gen2 Ventures, a consulting company in Saratoga, Calif.

"The ODBC/DRDA [capability] is pretty important because having access to mainframe databases [from PCs] is . . . a major reason for getting SNA Server," said Jamie Lewis, president of The Burton Group, a research analysis company in Salt Lake City.

One other new feature that Czubek cited is the addition of AFTP, a function that provides large-scale IBM systems with the capabilities of FTP, a popular file transfer protocol utility for TCP/IP. However, AFTP works with IBM's Advanced Program-to-Program Communications (APPC) over SNA networks.

SNA Server 2.11 will also add support for NT's Remote Access Services over SNA, a mapping layer that enables 16-bit APPC applications to run under 32-bit NT. It will also offer compatibility with IBM's new Client Access/400 5250 package and device-driver support for twin-axial adaptors connected to AS/400s.

New model, new price

Microsoft will modify pricing to provide customers with greater flexibility, Suomalainen said. Customers will now be able to choose either to buy licenses that let users take advantage of any SNA Server available or, in situations where users do not need access to hosts on a constant basis, to designate the license to cover a set number of concurrent users on a particular server.

SNA Server 2.11 costs $64.95 per user, the same price as Version 2.1. Each server costs about $400 in addition to license costs.

"I think the customers will like the change" in the licensing model, Lewis said.

Ford

CONTINUED FROM PAGE 49

Concept Center California, an independent consultancy retained exclusively for work on Ford vehicles. "We have used this on a regular basis to close that 2,000-mile distance that stands between Dearborn and California," he said. A three-way conference connecting the UK, Dearborn and Valencia offices has also been tried, he added.

Global standard

Ford is using SGI's InPerson videoconferencing software to link Unix workstations at all sites and SGI's Annotator multimedia to wrap video clips and three-dimensional images into the Unix-standard electronic-mail that comes with the SGI Irix operating system. The CAID unit standardized on SGI in late 1993 to avoid variations among computer system configurations, Delena said, and to ease software support and hardware maintenance on a global basis. Other Ford units use Unix workstations and servers from Hewlett-Packard Co., IBM and Sun Microsystems, Inc., he said.

Some engineers located many time zones apart have tried sending E-mail about design changes in a store-and-forward fashion. That way, the message can be read when the recipient comes to work even though the sender in a distant time zone is asleep at that later time. "We are in the process of deploying this," Delena said. "It is changing, to some degree, what we are doing, but it's part of a strategic way of implementing new tools. We can create and manipulate the information, exchange it with other people and make revisions."

Ford began to install SGI workstations in its design centers in late 1993, Delena said, and conducted beta tests of the new systems last year. Once CAID's global rollout is completed, engineers will be able to add on-line revisions to refine a part or assembly directly from their desktops. And that could make designing cars more like playing jazz than classical music. "It is the interactivity which will be the new element," said Ford spokesman John Gardiner.

ON SITE

Ford Motor Co.
Dearborn, Mich.

Challenge: To enable collaborative computing among engineers at seven design centers worldwide.

Strategy: Standardize on Unix workstations, high-speed networks and standard software packages; use multimedia software and E-mail to distribute designs on a global basis for review and revision.

Status: Worldwide rollout of networked workstations has begun, but only four of seven sites are linked so far.

Good mileage

Ford, like other large automotive companies, has long used high-capacity computers to achieve global manufacturing goals, analysts said. But over time, top-of-the-line supercomputers and mainframes have given way to high-end Unix servers, Unix workstations and visualization software. That process has cut hardware and maintenance costs substantially, analysts said. But those workstations can still be linked to Ford's supercomputer center in Michigan, which includes Cray Research, Inc. and MasPar Computer Corp. machines.

There are qualitative benefits as well. "If you're a worldwide manufacturer like Ford, Fiat or General Motors, there are no physical limitations on where your offices can be," said Terry Bennett, an independent analyst in Beaverton, Ore. "That gives you a tremendous range of flexibility for working with subcontractors." Without on-line connections, Bennett said, engineers must fly into centralized design reviews or exchange disks and tapes via overnight delivery.

The time it takes to bring new products to market is also affected by collaborative engineering that pushes the process closer to factories, said Bruce Jenkins, a vice president at Daratech, Inc. in Cambridge, Mass. "The more all phases of product styling, conceptualization, design engineering, analysis and prototyping is done digitally, [the better it] serves to compress the time to market," he said. "All of the automotive companies are using the most advanced styling and rendering software they can get their hands on." —*Jean S. Bozman*

American Power Conversion has announced the Smart-UPS line of interruptible power supplies (UPS).

According to the North Kingstown, R.I., company, the Smart-UPS line was designed for file and application servers, minicomputers, internet hubs and Unix CPUs. The line features SmartSlot, an internal accessory option slot that users can customize to enhance management, control and performance of the unit.

Other features include an intelligent battery management system with fast recharging, hot-swappable batteries, SmartBoost, which corrects brownout conditions, and SmartTrim, which corrects overvoltage conditions. SmartBoost and SmartTrim avoid unnecessary battery drain by boosting low voltage and reducing high voltage, respectively.

Prices range from $549 to $2,599.

▶ *American Power Conversion*
(401) 789-5735

CNet Technology, Inc. has announced the CN9020 and CN9020i, high-speed two-port Ethernet switching bridges that reconfigure slow departmental networks into faster workgroup networks.

According to the San Jose, Calif., company, the CN9020 and CN9020i divide an Ethernet network into two smaller ones that are faster, more manageable and easier to troubleshoot.

The products serve as repeaters to double the distance limitations of network segments. Packet forwarding is cut-through instead of store-and-forward.

The CN9020i includes a built-in Simple Network Management Protocol agent and CView, menu-driven management software.

The CN9020 costs $1,999 and the CN9020i costs $2,358.

▶ *CNet Technology*
(408) 954-8000

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The Merged Company of SynOptics and Wellfleet

Real-time ATM set for next century

By Stephen P. Klett Jr.
SAN JOSE CALIF

While new products are flooding the market on a daily basis, industry observers are beginning to realize that the benefits of full-scale Asynchronous Transfer Mode (ATM) services are a good four or five years away.

This opinion was shared by several vendors, analysts and users at the ATM Year Three conference held here recently.

"It will be another four to five years before ATM is ready to handle real-time traffic" such as voice and video, said Eric Benamou, president of 3Com Corp. in Santa Clara, Calif.

Most of the familiar hurdles remain, including incomplete standards; high hardware costs, which are dropping quickly; and prohibitively expensive tariffs charged by carriers, which are not dropping quickly. Monthly charges for private line wide-area ATM connectivity range from a few thousand dollars to more than $10,000 a month.

Backbone-ready

However, most observers said ATM is already able to handle data networking for backbone and server-farm applications. Fore Systems, Inc. in Pittsburgh, Cabletron Systems, Inc. in Rochester, N.H., and 3Com each unveiled products recently that users can implement for these applications, among others.

While analysts and users said the appearance of more widely available ATM products could only be good news, it is not enough.

"Everybody is focusing on technology rather than focusing on looking at ATM from the customer perspective," said Kathryn Korostoff, president of Sage Research, Inc. in Natick, Mass. "People are not looking for the best ATM vendor; they're looking for the vendor who can best merge all the various high-speed technologies."

"Cost-effective, functional products are key, of course, but we won't base our decision to go to ATM on cost alone," said Mary Diner, wide-area network infrastructure manager at 3M Co. in St. Paul, Minn. "We're looking to put the burden of management of ATM and existing technologies on the vendor, and who can handle that the best will get our business."

Competing for that business is a whole slew of vendors that have recently made announcements. Perhaps the most optimistic among ATM players, Fore unveiled low-speed ATM interfaces and software that it said enabled users to install wide-area ATM networks today [CW, Feb. 20].

A T1 or 1.544M bit/sec. interface joins Fore's DS-3 (45M bit/sec.) and OC-3 (155M bit/sec.) interfaces for use in the North American market. These WAN interfaces can be used to connect Fore's ForeRunner ATM switches over the wide area via carrier services and private lines.

The interfaces are available in the form of network modules designed to be inserted into a ForeRunner ATM switch. However, wide-area ATM does not come cheap: The modules start at $15,000, which includes ForeThought Bandwidth Management software.

ForeThought Bandwidth Management supports several switch capabilities needed to manage voice, data and video traffic over a wide area. These include Per-Virtual Circuit Queuing, Smart Buffers and Packet Level Discard. Together, these features automatically manage switch buffers and wide-area bandwidth resources. They can handle up to 12,000 virtual circuits per network module, according to Fore.

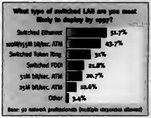
Going ATM

Cabletron announced a suite of ATM modules for its MMAC and MMAC-Plus hubs. They were designed to allow users to set up enterprise ATM networks that support their legacy LANs. The MMAC-Plus ATM Switch Module, developed with Fore, provides an aggregate switching capacity of 2.5G bit/sec. for up to 24 workstations or other ATM nodes at rates of up to 155M bit/sec. for $19,995. The vendor also introduced an ATM Access module for the MMAC-Plus that provides high-speed connectivity between legacy and ATM LANs for $12,995.

Also new are ATM Access modules for Cabletron's older MMAC and Micro-MMAC hub families that start at $2,395 and an ATM management module for use with its Spectrum network management platform for $4,995. All of these products are expected to ship in May.

For its part, 3Com unveiled its own road map for delivering ATM switching under its High Speed Scalable Networking umbrella. 3Com will ship a variety of switches during the next year, some of which were developed by NiceCom, Inc., which 3Com acquired last year. The $21,400 Cellplex 7000 ATM campus backbone switch is shipping now and will be followed by the $8,400 LinkSwitch 2700 Ethernet/ATM workgroup switch in the second quarter.

In the second half of the year, 3Com will ship the Cellplex 7200 Ethernet/ATM departmental switch along with several ATM interfaces for its LANplex hubs and NetBuilder II router. LAN and ATM switching modules for the LinkBuilder MSH hub are also slated for the second half of the year. A Token Ring-to-ATM switch is scheduled for early next year.



Source: Sage Research, Inc., Natick, Mass., and Brook Trout Research, Natick, Mass.

Mitch Betts

FTC requires info barriers

For corporate America, enterprise-wide networking is the big goal, the net nirvana. It means users in every nook and cranny — every subsidiary, division and department — can pluck valuable data from corporate servers. It means no barriers to E-mail.

But sometimes the free flow of information is illegal.

The Federal Trade Commission (FTC) in Washington has recently begun requiring some companies involved in mergers and acquisitions to restrict the flow of information between certain divisions of the same parent company.

At a time when IS departments are racing toward "seamless integration," the notion of a government-imposed information barrier could definitely complicate a network manager's job. It runs counter to every business and technology trend of our era.

But the FTC, which enforces antitrust laws to promote competition, has a different mission. The trend at the FTC is to press for antitrust settlements requiring an "information firewall" that stops a newly acquired business unit from passing sensitive information about competitors to its new siblings.

Take the $4 billion acquisition of PCS Health Systems, Inc. by pharmaceutical giant Eli Lilly & Co. in Indianapolis. PCS identifies the most cost-effective drugs for insurance companies and corporate health plans, so it knows the discount pricing strategies of Lilly's rivals.

In return for approving the acquisition, the FTC required a firewall that prevents Lilly from learning the prices that competing drugmakers offer through PCS.

In general, the FTC says it is worried that vertical mergers will stifle competition unless the purchaser is blocked from accessing proprietary information about its competitors.

For example, Alliant Techsystems, Inc., a military ammunition maker in Hopkins, Minn., is in the process of buying Hercules Aerospace Co., which supplies propellants for large-caliber ammunition. But an FTC consent decree requires Alliant to build a firewall that prevents the Hercules unit from passing on the secret product details it gets from other ammunition makers.

Merger terms

The merger of Lockheed Corp. with Martin Marietta Corp. in Bethesda, Md., was held up until the companies agreed to an information firewall between the satellite and rocket divisions. A similar firewall was required for Martin Marietta's purchase of a General Dynamics space division.

In each case, a conglomerate is gobbling up a supplier or delivery channel that also does business with the conglomerate's rivals and thus knows their secrets.

"The FTC is concerned about customers being hesitant to give information to a supplier if they're afraid the information will go [through internal channels] to a competitor," said Janet L. McDavid, an antitrust attorney in Washington.

So far, it seems the companies are complying with the firewall orders the low-tech way — by keeping the new business units at arm's length.

For example, Lilly and PCS are being run largely as

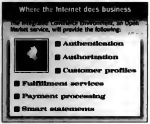
Betts, *page 84*

Open Market introduces Web server products

By Ellis Booker

Open Market, Inc. put a new spin on a nascent Internet market last week by introducing a World-Wide Web server that can work with its security, billing, tracking and administrative services.

"It's a very attractive and much-needed offering," said Judith Rosall, vice president of market research at Radicati, Inc., a Palo Alto, Calif., market research and consulting firm. Merchants that want to control the content and look of their on-line stores but are unwilling to manage security or credit-card authorizations can buy the Open Market server and off-load these tasks, she said.


Where the Internet does business

The Integrated Commerce Environment, an Open Market service, will provide the following:

- Authentication
- Authorization
- Customer profiles
- Fulfillment services
- Payment processing
- Smart statements

Services abound

Last October, Cambridge, Mass.-based Open Market began offering a variety of on-line services to small and medium-size companies wishing to create a Web presence and conduct business across the internet. Its services include account management and reporting, buyer authentication and payment processing and an on-line facility for creating a storefront.

However, after six months of operation, Open Market's home page contains just eight storefronts, half of which are fictional demonstration stores.

"They may have thought it through more and seen there was an 'open market' in the server market," Rosall said.

But company President and Chief Executive Officer Shikar Ghosh said Open Market will continue to host Web stores and provide all the associated back-end administrative support because "there is a class of people who just don't want to run their own Web server."

Open Market unveiled two server products: Open Market WebServer and Open Market Secure WebServer. The latter includes support for the two dominant forms of Web security today: the Secure HyperText Transport Protocol (S-HTTP) standard from the World-Wide Web consortium and Secure Socket Layer (SSL) from Netscape Communications Corp. in Mountain View, Calif.

Open Market supports both S-HTTP and SSL, which is optimized to work with Netscape Navigator, Netscape's Web browser.

"Our view is browsers are like telephones, and we have to support all of them," Ghosh said.

The servers can be used as stand-alone systems. Or with the addition of The Commerce Connection, a $2,495 software module, the servers can be linked back to Open Market's Integrated Commerce Service.

The WebServer costs $1,495, and the Secure WebServer costs $4,995. Both servers will be available in the second quarter.

Betts

CONTINUED FROM PAGE 83

separate companies with separate information systems, and technology integration has been put off, a Lilly spokesman said. Only a few people are authorized to talk across the border, and they have been fully briefed on what they can and cannot say.

These information walls are based on trust that well-trained employees will refrain from breaching the virtual wall and the lack of systems integration with the new acquisition. But will that be enough?

The history of mergers and acquisitions shows that after a few reorganizations and system overhauls, the boundaries between old and new will fade. The flow of information will become more common, and the risk of information leaks will grow.

Companies could partition the corporate network architecture so that all E-mail and file transfers between the FTC-regulated business units are blocked, but that would be overkill. The FTC is only interested in blocking certain types of proprietary information, such as pricing and product specifications.

Maybe the time will come when a more sophisticated technical fix will be needed, such as an expert system that polices the network traffic. But the techno-enforcer cannot plug the leaks from loose lips at company meetings or the golf course.

For network managers, the warning is this: Someday, you'll be zooming along creating information pathways from one end of the company to another, and you'll be stopped dead in your tracks by the company's legal beagle. "You can't do that," he says. "We need an electric fence around this unit."

Betts is *Computerworld*'s senior editor for social and legal issues. His Internet address is mbetts@cw.com.

[redacted]

Network-1 Software and Technology, Inc. has announced Net1-Firewall, an internet firewall system.

According to the Scarsdale, N.Y., firm, Net1-Firewall prevents any traffic through the system's facilities unless it is explicitly enabled by the network administrator.

The product provides framing source, destination and protocol type or specific data field fillers between Ethernet or Token Ring facilities. A typical system includes an Intel Corp.-based PC, 16M bytes of memory, a 500M-byte hard drive, two Ethernet controllers and software.

Net1-Firewall costs $11,900.

▶ *Network-1 Software and Technology*
(914) 472-7070

[redacted]

Tools emerge to 'SNIF' out network intrusion

By Gary H. Anthes

SAN DIEGO

Worried about security taking all the fun out of computing? Are fears of network break-ins keeping you awake at night? Maybe you should get a NERD.

You may have lots of nerds in your organization already, but you do not yet have a Network Event Recording Device (NERD), an automated, real-time system for monitoring and detecting network anomalies. Developed at Los Alamos National Laboratory in Los Alamos, N.M., NERD will be made available to the public, the laboratory said, but spokesmen would not specify a date.

Testing it out

Meanwhile, computer scientists at the University of Idaho in Moscow, Idaho, are perfecting Surveying Network Information Flow (SNIF), software for real-time monitoring and attack warning. SNIF, which the university also hopes to make publicly available, is now being used at the university and at NASA's Ames Research Center in Moffett Field, Calif.

TOOLS

For more information about...	Send E-mail to...
NERD	nerd@nerd.lanl.gov
SNIF	[illegible]@cs.uidaho.edu.
Shadoware	71564.3725@compuserve.com
Sidewinder	sorenson@sctc.com

Recent accounts of hackers, crackers and other assorted bad guys have heightened interest in network monitoring tools, particularly among companies that attach their LANs to the Internet. A session on NERD and SNIF at the recent Internet Society Symposium on Network Security here drew a standing-room-only crowd.

"I see a lot of users looking for this kind of product, but there's a real hole right now," said Michael Compton, manager of information technology security services at Coopers & Lybrand LLP in Detroit.

Government facilities, which are prime hacker targets, are especially interested in network event monitors. "We see people banging on our [network] doors all the time from all over the world," said David G. Simmons, the principle architect of NERD at Los Alamos, which has a highly heterogeneous network that serves 9,000 users.

While it has always been possible for systems administrators and security specialists to review log files for suspicious behavior, in practice that time-consuming chore is often neglected or undertaken too late to halt an intrusion. "Most people don't look at their log files until something ugly happens," Simmons said.

NERD and SNIF employ real-time graphical displays and alarms to highlight network anomalies as they occur. The Unix-based systems let the user tailor responses to suspicious events such as an attempted log-in from an unauthorized host.

With NERD, all anomalies are graphically displayed, while more suspicious ones trigger electronic mail. Really urgent events automatically send messages to alphanumeric pagers or make voice-synthesized public address announcements.

Going the extra mile

Some products go to considerable lengths to determine what is and is not suspicious network behavior. Shadoware, from Intrusion Detection, Inc. in New York, uses artificial intelligence and statistical techniques to compare users' current use patterns with prior, presumed normal, activities. It maintains a "digital fingerprint" of each user based on 38 usage variables, said Robert Kane, a managing partner at Intrusion Detection.

For example, a moving 90-day profile of systems use by a senior vice president might indicate he usually logs on in the morning, checks his E-mail and then invokes a spreadsheet or word processor. However, if his user ID showed up one day from Paris and attempted to access Unix resources that he had never accessed before, Shadoware would set off an alarm.

Shadoware is in beta-test use at two government agencies and will be introduced commercially for Novell, Inc.'s NetWare LANs in late May, according to Kane.

Sidewinder strikes back

Some monitoring tools blur the line between defensive and offensive measures. Sidewinder, from Secure Computing Corp. in Roseville, Minn., triggers alarms that notify network administrators when mischief is afoot. It can then block access by the hacker or feed false information to the intruder while gathering information about him for law-enforcement agencies.

Sidewinder uses "type enforcement," first developed for classified military systems, to control the flow of data between processes. For example, combinations of operating system processes and data can be specified as read-only, read and write, read and execute, or no access allowed.

Sidewinder also uses content filters that let users specify what may not come in to or go out of the corporation. For example, the filters can be set to block the passage of foreign languages, encrypted communications, expletives or binary code carrying viruses.

"The Internet is like a running sewer with little bits of gold in it," said Earl Boevert, chief scientist at Secure Computing. "The question is how to get the gold out without catching a really nasty disease." *—Gary H. Anthes*

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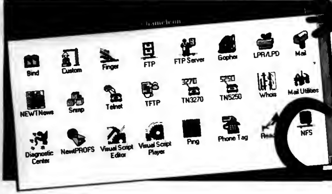

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Steve Moore

Interoperability still a problem

After 15 years of false starts, users are still waiting for computer vendors to solve interoperability problems by fully supporting open systems standards.

The original dream behind the International Standards Organization's Open Systems Interconnection (OSI) model was that computer systems made by different vendors worldwide would be "open." In other words, different vendors' systems would no longer be islands of incompatibility because they would share information with one another through use of standard protocols.

Users, many of whom had deliberately put up with balkanized multivendor computing environments to avoid having corporate information systems held hostage by a single vendor, embraced the open systems concept.

During the 1980s, competing vendors worked within standards committees to argue the merits of their technologies and reach compromises that became part of the OSI protocol stack. User input was minimal because few corporations let their technical experts travel to participate in lengthy meetings that produced no discernible short-term benefits.

But even after they agreed on key OSI standards, most vendors implemented those standards at a glacial pace — if at all — while seeking to make users dependent on proprietary technologies. And instead of implementing core standards in identical ways, vendors began deviating from them.

Too many vendors insisted that their own technologies be adopted by standards organizations; too few were willing to comply fully with standards arrived at by consensus. For example, many vendors designed supposedly standards-compliant systems that accepted data from — but would not provide equivalent data to — other systems.

European users begun to implement OSI-based networks despite vendors' maneuvers. in the U.S., users attempted to work around the problem by adopting TCP/IP and other alternatives developed by the more pragmatic Internet Engineering Task Force.

Out on their own

Today, however, a new and troubling trend has emerged. Unwilling to work patiently within established standards bodies to build long-term consensus, some vendors are forming consortiums to bypass them. Unfortunately, those same vendors were unable to agree even in their own groups as shown by the recent defection of the network management platform vendors from the Management Integration Consortium. Compaq Computer may fare no better with its recently announced Compaq Desktop Management Solutions Partners Program, many of whose members are also members of the Desktop Management Task Force.

Users will benefit most if vendors abandon separatist standards initiatives and work within established groups to reach the broadest possible agreement on key standards such as the Desktop Management Interface and Version 2 of the Simple Network Management Protocol. Once such standards are supported in a truly consistent way industrywide, users will benefit from true interoperability while vendors remain free to add innovative extensions that do not distort or negate the basic standard.

Are computer industry vendors capable of doing this? Absolutely, if they really want to. As the saying goes, "This isn't rocket science."

Moore is a senior editor, networking, at *Computerworld*'s Burlingame, Calif., bureau

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Standards body pushes IP

Group hopes to make protocol available by April, urges early adoption

By Suruchi Mohan

It seems most large users will implement the new version of the Internet Protocol sometime in 1997. But the standards body working on the protocol is still trying hard to get it approved.

At the Internet Engineering Task Force (IETF) meeting to be held in April in Danvers, Mass., the Internet Protocol Next Generation (IPNG) is expected to reach proposed standard status. This is the first step in a three-part standards approval process and will mark the first time the mostly completed standard will be available in toto to users.

But despite the frenetic activity, its immediate effect on organizations — even those that are large TCP/IP sites — will be minimal.

"It's too early for" implementation, said a user at a large aerospace company. "We react to products and user requirements. It will be a while before there are products," he said.

"For any corporation, this is the year to get educated," said Bob Moskowitz, a software support specialist at Chrysler Corp. in Detroit. "There won't be a product out this year that you can do anything with." Instead, he advised corporate users to put IPNG into budgets for next year.

Advancements since the July meeting of the IETF:

- Boundary between "stateless" and "stateful" has become more pronounced.
- Reaffirmed a number of decisions about security.
- Agreement on transition tools needed for initial deployment.

At Chrysler, implementation plans depend on how the fourth quarter looks, Moskowitz said. Setting up an IPNG pilot would require at least $100,000 in equipment alone. "It is not something you dive in and do."

But the IETF is chugging along, trying to tweak the protocol so companies can indeed dive in. Last month, three of the working groups of the IETF met in Palo Alto, Calif., and made some engineering revisions to the documents, according to Allison Mankin, a computer scientist at Information Sciences Institute in Arlington, Va. The committee hopes IPNG "will be a proposed standard by April," Mankin said.

At that point, the specification will probably become more widely available so users can begin testing it as a whole. Until now, only a few pieces of the specification had been available to testers pending finalization of some of the kernels.

Discussions continue

One area still being discussed is the new version of Dynamic Host Control Protocol (DHCP), which automatically configures workstations on the TCP/IP network. Users need a scalable way to generate host addresses for lots of machines. But the question is how best to provide this. Therefore, the IETF is making provisions for two popular methods to be in the final protocol.

One method that provides this functionality is called stateless DHCP. Intended for users with no specific need other than to start the system easily, stateless DHCP allows a workstation to boot up and discover an address. Stateful DHCP, on the other hand, allows configuration by an administrator with specifications added for specific hosts.

Finally, the IETF is also making some headway on the issue of how to transition from the current version of the protocol to the new one, said Ross Callon, a consulting engineer at Bay Networks, Inc. in Billerica, Mass. The transition mechanism has been discussed all along. Now the group has picked a subset needed to start the process of migration from IP Version 4 to IP Version 6.

A key feature of the transition strategy is the dual stack operation with encapsulation, Callon said. This essentially allows workstations and routers to be upgraded to speak both IP Version 4 and IP Version 6. Encapsulation allows packets to be sent over a mixed network.

Briefs

McCaw forms alliance

McCaw Cellular Communications, Inc. and Health Data Sciences Corp. said they have formed an alliance to bring wireless applications to the health care market. Health Data makes Ulticare, a Unix-based patient care information system. Ulticare will get a wireless link later this quarter.

Tivoli finds support

Tivoli Systems, Inc. reported that 13 companies, including Intel Corp., Informix Software, Inc., Remedy Corp. and Sybase, Inc., are building event adapters for the Tivoli/Enterprise Console (T/EC) automated event management application. T/EC is already packaged with event adapters for leading network and systems management applications, including Hewlett-Packard Co.'s OpenView, IBM's NetView for AIX and SunSoft, Inc.'s SunNet Manager. The event adapters will collect and filter information and forward alarms to the T/EC, which will correlate the information and initiate corrective actions.

Proteon posts profit

Proteon, Inc. in Westboro, Mass., reported profits of $9.2 million for its 1994 fourth quarter and an annual loss of $1.4 million, compared with a loss of $19.3 million for 1993.

Free from Bellcore

Bellcore is providing a free guide that helps network administrators update their systems for area codes that are beginning to incorporate numbers 2 through 9 as the middle digit. The guide lists new North American area codes and predicts which codes are expected to be used during the next 10 years. To order the guide, fax your name, address and a note requesting letter L-95-01-018 to (201) 740-6960.

Securing the 'net

The first implementations of Netscape Communications Corp.'s Netsite Commerce Server have begun to appear. Recently, Menlo Park, Calif.-based CyberSource Corp., an on-line software distribution and information service, said it had begun using the server for its software.net site. The Netscape server features an encryption scheme based on RSA Data Security technology for sending sensitive data such as credit cards across the Internet. Wells Fargo Bank in San Francisco said it had begun using the Netscape server to authorize and process credit cards for Virtual Vineyards, a wine retailer in Los Altos, Calif.

UNICENTER TO 'PATROL'
DATABASE MANAGEMENT, 90
NEW PRODUCTS, 90

Integration standards

Users skeptical of vendor group's plans

By Rosemary Cafasso

■ While client/server users applaud the software integration goal of the recently launched Open Application Group (OAG), some are uncertain that it will live up to its promise.

The OAG will release integration specifications for the following:

- Business applications to other business applications, such as financials
- Business applications to vertical applications, such as banking
- Business applications to niche applications, such as budgeting

The OAG specifications will focus on:

- The order of processes within an application
- How information is presented

The OAG will not take a stand on:

- Operating systems
- Databases
- Communications protocols

"They are all racing to be the leader in the industry, so do they all really have time to work together and develop something to go down the same path?" asked Steve Wells, chief information officer at Suburban Propane, Inc. in Whippany, N.J., which uses client/server software from SAP America, Inc. in Philadelphia.

The OAG was announced late last month as a software developers group that would publish specifications for client/server applications software integration. The first set of specifications, to provide consistencies among business applications, is scheduled for release within a year.

Joining forces

The nine founding members of OAG include SAP, Oracle Corp., PeopleSoft, Inc. and Dun & Bradstreet Software — all fiercely competitive rivals. But OAG representatives claim the point of the group is to solve the integration problem that has dogged many users.

Paul Margolis, president of Marcam Corp. in Newton, Mass., and chairman of the new group, said the OAG is not pretending to toss aside all competitive interests. In fact, he said the OAG's integration goals are smart competitive choices for the vendors involved because they address user demands for integration.

"We will make more money from this than resisting a trend that's obvious," Margolis said.

Even so, some users said they are skeptical that the OAG can get the integration specifications out within a year.

"As a concept, it probably makes sense, but I am not sure how doable it is, and I am not sure what the motivation is behind it," said Bob Culmer, director of information technology at Phillips Cables Ltd., a Toronto-based customer of D&B Software. "They are all at different points in the client/server evolution today. So the question is, who would lead the way?"

Culmer and other users said they would like to see the OAG meet its goal because it would allow them to truly mix and match applications.

Today, there are few choices. Users can either select a company with a full suite of applications, such as SAP, or attempt to do their own integration among applications, which is often a nightmarish task.

"It would make a lot of sense," said Bruce Steinke, manager of corporate accounting at Clark USA, Inc., a fuel refiner and marketer in St. Louis, about the OAG's plans for integration. "You are pretty much stuck with a suite of products that a company supports or manufactures. The openness could give you an advantage."

Clark USA runs client/server accounting software from Platinum Software Corp. in Irvine, Calif., which is not a member of the OAG. A Platinum spokeswoman said the company is evaluating the group.

The advanced financial information systems project team in Chevron Corp.'s IS department knows how time-consuming integration efforts can be, said Bob Washa, a technical manager. The team is linking SAP financials to legacy systems and considers it a difficult task. As a result, integration assistance would be a big boost, Washa said.

"As strong as SAP is, they still don't have everything," Washa added.

Reluctant

Some client/server applications companies, including Platinum Software and Hyperion Software Corp., have not yet joined the OAG. They said they have been working on open applications all along and may not find OAG membership beneficial.

LA port docks data with client/server

Mainframe leap on schedule but $50,000 over budget

By Craig Stedman

Client/server's ship is coming in at the Port of Los Angeles. But it is a slow boat that has to prove itself seaworthy in order to be rewarded with expanded docking rights.

Faced with a capital improvement budget expected to double in the next five years, the port, officially known as Worldport LA, is turning to Unix-based client/server technology to integrate now-scattered functions such as project management, payment scheduling and engineering.

The integrated application is being built around a Sun Microsystems, Inc. server, Sybase, Inc.'s database and PowerBuilder development tools from Powersoft, which was recently acquired by Sybase. The code runs in prototype form and includes about 20 of the port's 200 or so capital improvement projects. Full implementation is scheduled for the end of May.

User power

Making data more accessible and distributing processing workloads are appealing concepts. "I have to find a way to give our users more than I'm giving them today," said Stan Johnson, director of information systems at Worldport LA. The IS department also stands to benefit resource-wise if it can hand off tasks such as report generation to end users, he added.

In addition, Johnson said he worries about the port looking "like a dinosaur with a little old mainframe" — in this case, an Amdahl Corp. 5890 running IBM's VM/VSE operating system. While some of Worldport LA's processing is already done on PC and Macintosh LANs, the bulk of its workload remains on the mainframe.

But like many other traditional mainframe shops, the port is feeling its way into the client/server world. The capital improvement project is essentially a trial run that will determine just how big of a Unix splash Worldport LA will make in the long run, according to Johnson.

Although the application is important and highly visible at the port, it involves a relatively small amount of data. "This is a business that makes a lot of money doing very traditional things, and I don't want to sell them down the river for the sake of new technology," Johnson said.

Busted budget

And the port has in fact fallen into the same kind of deep water that other companies have experienced with client/server. The project is on schedule, but linking its LANs to Sun's SPARCcenter 1000 server required a greater effort — as well as more cabling and software — than expected.

As a result, Johnson said, the job is over budget by about $50,000, with a total cost of about $500,000. However, the overrun will be covered by contingency funds that the port has in place.

Despite those problems, Johnson and other port officials hope their investment will pay off in the form of better cash flow, financial forecasting and project management. Different pieces of the construction process are currently confined to their own islands on the mainframe or LANs, an approach deemed too disjointed to handle the $1 billion in capital spending that Worldport LA plans in the next five years.

That is roughly twice as much as it spent in the past five years. "We're going into an expansion mode, and there was a key concern that we have better management tools to oversee the projects," said Ray Martinez, senior management analyst at the port's engineering division. "It's a lot more money and a lot more work than we were doing previously."

The new application will provide "a single point where people can go and pull out information on the status of a project," Martinez added. From the end user's perspective, that should result in a more refined method for ensuring that project schedules and

Worldport LA, *page 90*

ON SITE

Worldport LA
San Pedro, Calif.

Goal: To integrate processing related to capital improvements in order to handle a planned doubling of construction spending in the next five years with little or no borrowing of money.

Strategy: To build a Unix-based client/server application that will give managers and accountants a single point for accessing data on the status of projects and expenditures.

Results: The application is running in a limited prototype and is scheduled for full implementation by the end of May. A total of about 200 capital projects should be loaded into the system by then.

Unicenter to 'Patrol' database, app management

CA to integrate other BMC Software products into its suite

By Thomas Hoffman

■ Computer Associates International, Inc. continues to shore up its distributed systems management suite with the announcement last week that it will integrate BMC Software, Inc.'s Patrol application and database management tool set into its CA-Unicenter cache.

Although industry pundits viewed the alliance positively for vendors and their customers, the CA/BMC accord raised uncertainty about the future of two recently acquired CA products: CA-Unicenter/DB Alert and CA-Unicenter/Systems Alert. Those packages, which CA purchased from UK-based ICL last November, overlap with the functionality of BMC's Patrol tools.

Users can choose

"Patrol is more robust than what we" acquired, acknowledged Yogesh Gupta, a senior vice president at Islandia, N.Y.-based CA. Gupta added that CA will offer its customers both sets of event-detection software.

In addition to its plans to integrate the Patrol package into CA-Unicenter by July, CA will also include other soon-to-be-announced BMC products on its Development Partner CD-ROMs, which are distributed to CA-Unicenter clients. BMC's forthcoming products include its Meta database administration tools, which will be launched this week, analysts said.

CA and Houston-based BMC will continue to market and enhance their own products independently.

Patrol, which BMC picked up through its acquisition last year of Patrol Software, Inc. in Redwood Shores, Calif., is widely viewed as one of the most highly evolved application and database administration packages on the market today.

Analysts attributed this to the complexity of Patrol's knowledge modules, which are loadable libraries of expertise that contain rules for how Patrol will manage an operating system, database or application.

"There's a [database management] gap in many of the systems management frameworks, and Patrol is one of the few offerings that addresses this at a detailed level," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

That level of functionality appeals to William M. Mercer, Inc., a Louisville, Ky.-based benefits consulting firm that manages its Hewlett-Packard Co. HP 9000 Unix environment with CA-Unicenter.

"One of the things we've regretted about Unicenter was that it didn't have any hooks into our Sybase database," said Cathy Nooning, a Unix systems administrator at Mercer. She said she plans to order a test copy of the Patrol software to gauge its effectiveness.

BMC's Patrol supports the following platforms:

- Hewlett-Packard's HP 9000/700 and HP 9000/800
- Data General's DG/UX SVR4
- Digital's Alpha OSF/1 and OpenVMS
- IBM's RS/6000 AIX
- Sun's Solaris 2.3
- Pyramid Technology's DC/OSX

Patrol pricing starts at $6,000, depending on the number of consoles and managed objects

Joint effort

CA and BMC are jointly developing BMC's Patrol knowledge modules to include CA financial and manufacturing applications, including CA-Masterpiece/2000 and CA-PRMS.

Worldport LA

CONTINUED FROM PAGE 89

expenditures are in sync, he said.

With the mainframe, financial data is available only at month's end, according to Johnson. The Sun/Sybase system is supposed to enable the port to see "what we should pay on a day-to-day basis," which could help the port avoid paying penalties to the contractors it hires to do construction.

That in turn may enable the port to avoid having to sell bonds to finance the capital improvements, he added.

"We don't like to borrow money. We want — to the greatest extent possible — to pay for this out of revenue, but the revenue stream is going to be tight. Inflow is going to pretty much equal outflow," Johnson said.

When fully operational, the Sun/Sybase system is expected to support as many as 500 users. About 20 are working with the equipment during the shakedown cruise, which involves capital projects related to the ongoing construction of 300 acres of new piers, Johnson said.

Still waiting to be loaded into the system are projects such as the building of a direct rail link into the port and the planned reclamation of land that was polluted by past tenants. "With the initial ones that we've done, it's worked out," Martinez said. "But it's still a small sample."

Tidal wave

About $66 billion worth of cargo passed through the Port of Los Angeles last year in a total of 2½ million containers. Cruise ships operating out of the port carried 850,000 passengers. The port also operates a marina with 1,400 boat slips. The facility made a $93 million profit on revenue of $200 million in the fiscal year that ended last June.

Briefs

First Union to upgrade centers

First Union Corp. in Charlotte, N.C., announced plans to upgrade its data centers in Charlotte and Jacksonville, Fla., with three Amdahl Corp. 5995-10670M 10-way multiprocessors and an Amdahl 5995-5570M processor.

NCube makes a sale

NCube has sold a 64-processor version of its M10 massively parallel processing system to Telecom Australia, which plans to use the machine as a decision-support server running an Oracle Corp. database.

Affiliated takes on new accounts

Affiliated Computer Services, Inc. in Dallas has reached an agreement in principle to provide item processing services to 310 banks that had been serviced by Nationar. Nationar, a New York-based bank that had provided back-office services such as check processing to banks and thrifts in 40 states, collapsed earlier this month. Affiliated's agreement is with the New York acting superintendent of banks.

Digital rolls out latest Unix

Digital Equipment Corp. last week released the latest version of its Unix operating system software, OSF/1 Version 3.2. The software features Asynchronous Transfer Mode support, improved systems management and a Common Desktop Environment developer's kit, according to Digital.

Chase to outsource services

The Chase Manhattan Bank NA has announced plans to outsource its New York-based check processing and check imaging to Fiserv, Inc. in Milwaukee. The 12-year agreement, which went into effect March 1, is expected to generate roughly $40 million in annual revenue for Fiserv and provide Chase with "substantial" cost savings. Further terms were not disclosed.

Quantum Corp. has announced the DLT4000, a digital linear tape drive.

According to the Milpitas, Calif., company, the 5¼-in. tape drive has a capacity of 40G bytes of compressed data and a sustained data transfer rate of 3M byte/sec.

The drive features Fuji Film Co.'s ATOMM high density recording media for durability.

The DLT4000 internal drive costs $6,225.

▶ *Quantum*
(408) 894-4000

Relational Architects International has announced Thread/Stopper, software that cancels CICS and IMS threads without affecting other transactions and users.

According to the Hoboken, N.J., firm, Thread/Stopper provides a single point of control for all DB2 application and utility threads and lets authorized users cancel problem threads before they disrupt the system.

The product provides a detailed audit trail of who, when, where and how threads were canceled.

Prices start at $6,800.

▶ *Relational Architects*
(201) 420-0400

Compumetrics, Inc. has announced iMetrics, a Windows-based resource and service management package designed to manage mainframe and midrange systems performance and utilization.

According to the New York firm, iMetrics is aimed at managers of IBM MVS and AS/400 systems and provides daily, weekly and monthly graphical performance reports.

iMetrics costs $9,850.

▶ *Compumetrics*
(212) 346-7569

Sapiens International Corp. has announced MVS ObjectPool, software that provides database-independent views of live mainframe data.

According to the Durham, N.C., company, MVS ObjectPool lets users encapsulate mainframe data in DB2, IMS, VSAM, DL/I and other database management systems.

The data can then be used for developing intelligent objects as building blocks in client/server applications. The product leverages the mainframe for procurring the resident data.

MVS ObjectPool costs $37,500.

▶ *Sapiens International*
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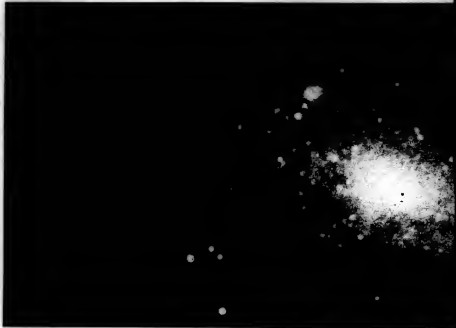


J.D. POWER

The SAS System
Executive Summary

Oracle groupware still rated a 'future'

By Kim S. Nash

Oracle Corp. has announced and reannounced groupware plans for the past 18 months but with little product to show users.

Last week was no different.

Recapping plans it first outlined in September 1993, Oracle officials again talked about "enterprise-level groupware" but delivered simply an incremental upgrade to the company's proprietary electronic-mail product.

Oracle seeks to provide groupware that goes beyond today's common departmental-level products, said John Bartlett, senior director of marketing for groupware products. "We see it as an infrastructure managing all types of information over any network," he said.

Yet, products that add steak to that sizzle are at least six months to a year away, Bartlett acknowledged.

"The pieces will start shipping this year and continue" into 1996, Bartlett said, referring to the several component products that make up Oracle's groupware offering, newly renamed Groupware/2000.

Office 2.1, which was unveiled last week, is a start, he said. The product supports disconnected E-mail. That means mobile users can dial in to company networks, download messages, log off, type responses, then upload outgoing mail the next time they dial-in, he said.

Oracle, which is based in Redwood Shores, Calif., plans to adhere to the Messaging Application Programming Interface (MAPI) protocol so Office users can more easily converse with counterparts on other E-mail systems. MAPI compliance is due out this year, Bartlett said. Oracle will publish its own APIs so other vendors can write software that talks to its products, he added.

Yet at $150 per user, plus the cost of the Oracle7 database, Office 2.1 does not come cheap compared with other E-mail products, users noted. Lotus Development Corp.'s CC:Mail, for example, costs $68 to $85 per user.

Oracle first promised to ship enterprise-caliber document management and other capabilities for a true groupware offering by the end of last year as part of a product set then known as Documents [CW, Feb. 28, 1994]. Now, the document management piece, Library, is due for beta testing this month or next, users briefed by Oracle said.

Oracle's slow motion has in turn slowed some customer rollout plans. For instance, Camp, Dresser & McKee, Inc., an environmental consulting firm in Cambridge, Mass., had to delay swapping out a dated, 8-year-old All-In-One office automation setup from Digital Equipment Corp. for equivalent Oracle products. Chief Information Officer Peter Palmisano said his company cannot switch because Library is behind schedule. "I've got a missing piece there," he said.

Though not catastrophic, "the delay [is] inconvenient," Palmisano said. Nevertheless, he is committed to wait because few other groupware offerings run on as many platforms and operating systems as Oracle products do, he said. "One of our strategic thrusts is to migrate toward open systems," he said, referring to the firm's plan to move from proprietary Digital VAXs to Unix systems during the next few years.

Other users are convinced that when it does arrive, Oracle-built groupware will indeed best the functionality of Notes and others.

Detroit Edison Co. is testing an early version of Library with good results so far, said Jon Chang, a project manager for enterprise information management. In fact, the Michigan utility, a massive Oracle site, has decided that Oracle groupware "will be the ... standard wherever appropriate, throughout the entire company," Chang said.

Groupware, Oracle-style

[illegible]

MODULE	WHAT DOES IT DO?	AVAILABILITY
ConText	Text-searching utility	Now
Office	E-mail and scheduling package	Now
Library	Document management	Second-half 1995
Text Server	Database for storing and manipulating text	Second-half 1995
Video Server	Database for managing full-motion video and audio	Second-half 1995
Not yet named	Image management	Early 1996

Data View

Many people are talking about data warehouse technology, but what is it all about?

Three characteristics of a data warehouse

① Provides a separate home for data that is used for decision-support and analysis applications, apart from operational data

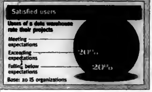
② Simplifies the presentation of data to users with data descriptions and data-browsing facilities

③ Provides additional views of the data that are relevant to users in a decision-support and analysis environment

Types of data warehouse applications

- Market analysis
- Management reporting
- Financial analysis
- Sales support
- Customer service

Satisfied users



Base: 10 15 organizations

Source: International Data Corp., Framingham, Mass.

Shaku Atre

Business-driven sense

One of the current industry mantras is: Client/server must be business-driven, not technology-driven. That's true. But what does being business-driven imply, and how must we develop systems and select tools to achieve it?

Client/server fosters business-driven development because it facilitates a company's efforts to redesign processes and jobs with business process re-engineering. Business process re-engineering-based client/server promises orders of magnitude operational improvements in efficiency, responsiveness and effectiveness. This is why companies are willing to brave client/server's high cost and complexity.

Why is client/server such an effective road to business process re-engineering? It makes possible operational and decision-support systems that give the and user point-and-click desktop access to the company's information resources. This makes it possible to redesign jobs in new ways.

At your service

For example, consider the customer service function. Traditionally, a customer calling a company might be transferred on the phone from department to department, which is frustrating for the customer and expensive for the company. With business process re-engineering supported by client/server, the jobs can be redesigned so that one worker, from a powerful client workstation, has on-line access to various specialized databases and can handle most of the customer's needs quickly, directly and relatively cheaply.

Such advanced client/server applications are difficult to build with current tools. Most GUI development tools are adept at developing screens but fall short on building the rest of the client/server system. They do not support the business modeling process or help mitigate the inherent complexity of client/server architectures.

Customarily, a programmer must manually code the interactions between clients and the server for a specific database and database engine. Applications often are not scalable to distributed databases or large complex enterprisewide applications. Changes, even to minor business rules or to redefine data locations, require recoding.

Stumbling blocks

Much of client/server's complexity stems from limitations of current technology. User organizations must resolve puzzling systems integration and other issues themselves.

Lack of expertise is the reason companies most frequently cite for not deploying client/server, according to a recent Datapro survey. To get around this problem, successful client/server vendors will have to provide products that eliminate excessive complexity and feature client/server architectures.

These kinds of products have started to appear. I recently used a development environment that exploits the business-driven capabilities of client/server. It enables development based on a business model and automates much routine transaction processing

Team Enterprise Developer, a Windows-based development environment from Symantec, has an underlying client/server architecture called Scalable Architecture for Large Enterprises (SCALE). The business model for the enterprise — including the logical model, centralized business rules and data location — are stored in a central repository located on the server of your choice.

Enterprise Developer's transaction processor uses the business model to automate processing of transactions through a precompiled C++ class library called SCALE Objects. Applications built with this tool are database-independent.

With most GUI development tools, achieving such functionality would require some brilliant work by your best programmers. With Enterprise Developer, the functionality needed to build complex, mission-critical, enterprisewide applications is designed into the environment. Because business process re-engineering involves changing the model of a business, working from a business model provides tremendous conceptual help to developers.

The bottom line is that this approach — model-driven programming that does much of the work for you — has resulted in one of the first tools that helps bridge the expertise gap arresting the client/server plans of many companies.

Atre is president of Atre Associates, Inc. in Port Chester, N.Y.

Seer targets development tool set at client/server world

By Rosemary Cafasso

Seer Technologies, Inc. in Cary, N.C., last week moved its application development software platform beyond the glass house to more distributed platforms.

Unlike previous generations of High Performance System (HPS), Release 5.3 will not require a mainframe.

The company also committed to extending the HPS development tool set later this year by offering tighter integration with front-end tools such as Microsoft Corp.'s Visual Basic.

"It means they can play in lower-cost [customer] scenarios, and they can offer up a technology-independent solution," said Ed Acly, an analyst at International Data Corp. in Framingham, Mass.

Release 5.3 provides several functional upgrades, and some will be offered as add-on products. For example, with Freeway, a LAN-based repository, users for the first time will not be required to maintain a mainframe-based repository to manage development, said Tim Murray, a director of product management.

Seer's steps beyond the mainframe are critical, said David Guzman, director of information technology architecture at Norcross, Ga.-based Federated Systems Group, a subsidiary of Federated Department Stores, Inc.

"This is a strategic part of our direction in client/server — to reduce the dependence on mainframe-type platforms," Guzman said.

Guzman, who has been working with early versions of Release 5.3 code, said he considers Freeway the "crown jewel" of this release because it enables more distributed development.

Seer is one of several companies shooting for a key slot in the coveted client/server application development market. With a large-scale development focus, the company frequently butts heads with companies such as Texas Instruments, Inc.

Becoming a player

Last week's announcement could boost Seer's competitive efforts against a newer class of development tools providers, among them Forte Software, Inc. and Dynasty Technologies, Inc., industry analysts said.

"They are definitely in the competitive fray, which is an issue for them," said Chet Geschickter, an analyst at Hurwitz Consulting Group, Inc. in Watertown, Mass. "They have been marketing to very large information systems organizations, and now they will be going out into this highly competitive, cross-platform space."

The upgraded HPS is targeted for general availability in June, although Seer said some initial shipments are scheduled for later this month.

Prices will range from $75,000 to $225,000, depending on the platform and the number of users.

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Briefs

IBM databases gain Excalibur

IBM plans to integrate image-retrieval software developed by Excalibur Technologies Corp. in San Diego into its DB2 for OS/2 and AIX databases.

Credit to the card

Roderick C. Mack joined MasterCard International as senior vice president, systems development. Mack, formerly vice president of business systems at United Telecommunications, will be based in St. Louis and will report to Jerry McElhatton, president of global operations and technology services.

Perfect match

Unisys Corp. and Oracle Corp. have enhanced a long-standing alliance under which Unisys resold Oracle database products. Under the new agreement, Unisys will resell the entire range of Oracle products, including database tools and applications, for any hardware or operating system platform. The accord gives Oracle an opportunity to increase sales through one of its largest resellers. It helps Unisys offer multivendor solutions to customers.

Multilingual objects

Computer Associates International, Inc. has begun shipping international versions of its CA-Visual Objects object-oriented application development tool. The screen painter is now available in French, German, Spanish, Arabic and Japanese.

No OLE for CORBA

Microsoft Corp. declined to submit its Object Linking and Embedding (OLE) technology to the Object Management Group (OMG) for possible inclusion as the compound document piece in the OMG's CORBA (Common Object Request Broker Architecture) by last Monday's deadline, the OMG said. All submissions received by last Monday — from Apple Computer, Inc., Novell, Inc., IBM and Component Integration Laboratories, Inc. — use OpenDoc, said OMG President Chris Stone. CI Labs' president Jed Harris said it will be possible to use OpenDoc components in an OLE environment. A Microsoft spokeswoman said the OMG's request for proposal precluded Microsoft's participation because it required CORBA compliance.

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SDP Technologies, Inc. has announced S-Designer, software for designing, creating and modifying databases.

According to the Westchester, Ill., firm, S-Designer generates database structures for more than 40 databases and features both conceptual and physical design.

Users can reverse-engineer existing databases, modify the physical or conceptual model and use submodels as part of a larger project. The workgroup edition includes a SQL project dictionary.

Prices range from $1,995 to $3,495.

▶ *SDP Technologies*
(708) 947-4250

Woll2Woll Software has announced InfoPower 1.0, a set of native components for Borland International, Inc.'s Delphi development software.

According to the San Jose, Calif., company, InfoPower 1.0 provides components that are automatically linked to the .EXE file for developers creating database front ends with Delphi.

Components include a Super Database Grid, Lookup Combobox, Advanced Filtering, Table Sort, Auto-Expanding Memo, Incremental Search and Table Lookup/Locate.

InfoPower 1.0 costs $149.

▶ *Woll2Woll Software*
(408) 293-9369

Bluestone Communications, Inc. has announced DB-UIM/X for Informix Software, Inc. databases, application development software for relational databases.

According to the Mount Laurel, N.J., company, DB-UIM/X already supports Oracle Corp. and Sybase, Inc. databases. It also supports large text and binary large objects, imaging and advanced networking.

Users can develop their entire code in C or C++ using visual programming. Enhanced method support lets users set virtual methods and method access and edit the declaration of a C++ class.

DB-UIM/X for Informix costs $6,500.

▶ *Bluestone Communications*
(609) 727-4600

AIB Software Corp. has announced Sentinel II, a runtime analysis tool.

According to the Dulles, Va., firm, Sentinel II identifies execution errors and memory leaks throughout C and C++ applications, including user code, third-party libraries and shared libraries.

The product is designed to monitor memory accesses performed by an application and detect memory errors and the line of occurrence before a fatal program crash.

Sentinel II costs $695 for a personal network license or $2,495 for a floating network license.

▶ *AIB Software*
(703) 430-9247

Western Wares has introduced CC-Rider 5.1, source code analysis, browsing, editing and documentation software for C and C++.

According to the Norwood, Colo., firm, CC-Rider 5.1 features Microsoft Corp.'s Windows NT support, 32-bit performance and an enhanced visual source code browser.

A function/data caller tree visualizes the web of functions that use a specific variable or function. The product includes a hypertext editor, integrates with existing editors and generates help files from code.

The software supports C++ features, including nested classes, templates, runtime type identification and exception handling. In addition, an application programming interface library is also provided.

CC-Rider 5.1 costs $549.

▶ *Western Wares*
(303) 327-4898

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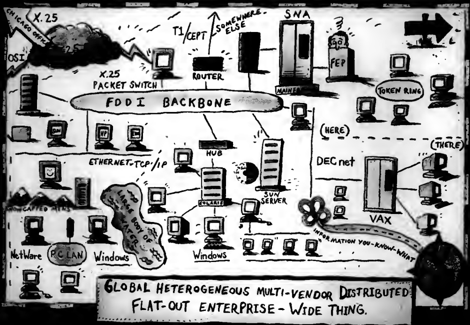

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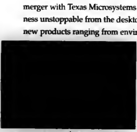

INSIDE Page 112
A look at Jim Champy's *Reengineering Management*

HOME SWIFT HOME

House prices and interest rates are up, and home ownership is down. To put more Americans into their own homes, the mortgage industry is counting on technology to reduce the time and cost of processing mortgage applications and will pass those savings on to buyers.

By Leslie Goff

Katherine Lambert

BUYING A HOME, **with all its requisite paperwork, has remained one of the great American social customs largely unimproved by information technology.**

House buyers are beginning to see relief, however, as the mortgage banking industry turns to information technology to reduce the length and cost of the mortgage application process. With the aid of expert systems, mortgage lenders are able to instantly approve a buyer's credit, lock in an interest rate and eliminate the need for certain traditional documentation.

The process has become so automated, in fact, that the new Loan Prospector system launched commercially last month by the Federal Home Loan Mortgage Corp.

Home swift home, *page 104*

PROGRESS
SOFTWARE

Development and Beyond

Home swift home

CONTINUED FROM PAGE 101

(Freddie Mac) in McLean, Va., can complete a buyer's credit check in less than four seconds.

The goal is to bring more first-time buyers into the market by turning a cumbersome, six- to eight-weeklong paper chase into a fully automated, weeklong electronic exercise and trim 20% to 50% off closing costs in the process.

The need is very real. In the past 15 years, the percentage of Americans who own homes has dropped from 66% to 64%, according to Edmund G. Woods, president of the National Association of Realtors based in Chicago, and head of his own real estate firm, Edmund G. Woods Co. in Holyoke, Mass.

"That translates into millions of families that don't own their own homes," Woods says.

Coupled with a need to increase the market is a sense of moral obligation to get more Americans into their own homes, Woods says. "The president wants to bring the figure back up to 66%, so we'll need 1.1 million new first-time buyers to raise the percentages."

But getting those first-time buyers will depend on making home ownership more affordable. The big obstacle, according to industry studies, is the money needed up front, which can include $2,500 to $3,000 just for closing costs. Add to that the amount needed for the down payment on the selling price and it can be difficult for first-timers to raise the money needed to begin house shopping.

If information technology can lower the cost of loan processing and speed the mortgage application and approval process, savings of about $1,000 per loan can be passed on to consumers, industry executives say. This could bring a large number of new buyers into the market who previously had been shut out.

The industry's use of technology may also help it respond to pendulum swings in mortgage activity caused by fluctuating interest rates. And mortgage companies and banks are striving to enlarge the whole pie in order to enlarge their own slice.

"It isn't so much how [information technology] is used for processing at any one step, but how it makes the pipeline more efficient," says David Madieros, an analyst at The Tower Group in Wellesley, Mass. "Mortgages are commodities right now, and the profit is razor thin. The company that survives is the one with enough volume to cover the processing, and the way to get volume is to be very efficient at moving mortgages through the pipeline. And [information technology] can help."

BancBoston

"There's a feeling that the industry is at a crossroads, a belief that technology is at a point where it promises to transform the industry," says Dan Scheuble, executive vice president of technology at BancBoston Mortgage Co. in Jacksonville, Fla., a wholly owned subsidiary of Bank of Boston.

Technology is already transforming BancBoston. The company is re-engineering business processes to reduce the cost of originating a loan by 20% and increase underwriting productivity by 40%. BancBoston wants to reduce the mortgage application process to 10 days and eventually cut that figure in half, according to Scheuble.

Using an automated underwriting program with an expert system-based loan scoring engine, the company can lock in mortgage rates and issue conditional loan approvals in one or two hours, Scheuble says. The benefits: House buyers can shop with greater confidence and possibly get better interest rates by locking them in early.

Type of company	Origination	Secondary marketing	Servicing and portfolio mgt.	Total
Mortgage companies *(Independent companies and subsidiaries of commercial banks)*	$330M	$1.3B	$0	$1.6B
Secondary market *Mortgage investors and private mortgage investors*	NA	NA	$760M	$760M
Commercial banks	$160M	$410M	$1.5B	$2B
Savings banks *(Mutual savings banks and savings and loan associations)*	$20M	$50M	$90M	$160M
Credit unions	$0	$85M	$90M	$175M
Total	$510M	$1.8B	$2.4B	$4.8B

"Automated underwriting, while fairly common in consumer lending, has only been implemented by a few companies in mortgage banking," Scheuble says. "It's critical for us because it allows us to increase our production capabilities. We can access credit bureau and appraisal information, take the loan application data and score the loan from the credit and property perspectives."

A full-service mortgage banker, BancBoston originated $13 billion in mortgages in 1993, when low interest rates generated a swell of refinancing. Business then dropped off 40% to 50% in 1994, as higher interest rates created a drop in mortgage activity.

The re-engineered business processes, Scheuble says, are helping BancBoston to deal more effectively with such swings in activity. Moreover, with 60% of mortgage applications being preapproved by the automated underwriting system, BancBoston's underwriters can focus on the 40% of mortgage applications that need special attention.

"The company that survives is the one with enough volume to cover the processing, and the way to get volume is to be very efficient at moving mortgages through the pipeline. And [information technology] can help."

David Madieros,
Analyst
The Tower Group
Wellesley, Mass.

Countrywide

Countrywide Funding Corp. in Pasadena, Calif., was one of the first mortgage financing companies to develop a proprietary value-added network to speed the application pipeline. The company already has direct links to some 500 partners using its network, which features a "Lock-and-Shop" system that locks in interest rates and prequalifies loans before home buyers even go shopping.

"A consumer calls Countrywide and wants to know what he or she can afford," Butler explains. "We take a handful of information over the phone and basically give them back a guaranteed rate at which they can go find a home within 30 days. They virtually become a cash buyer because they're preapproved for a specific loan amount."

A similar "List-and-Shop" system that guarantees interest rates for real estate brokers was launched over the network last fall, Butler says. The company is also adding to the network an expert system-based loan underwriting system, dubbed Clues, that will enable brokers to lock in rates and gain conditional loan approval in four or five minutes.

Fannie Mae

But the most far-reaching efforts have been by The Federal National Mortgage Association (Fannie Mae) in Washington and the Federal Home Loan Mortgage Corp. (Freddie Mac).

Fannie Mae, like Freddie Mac, is a government-sponsored agency created to help bring more buyers into the market. It doesn't actually issue loans but, similar to the Small Business Administration, guarantees loans. Its customers are not shoppers, but lenders.

In the drive to open the market to more buyers, the agency is working to reduce the mortgage approval process for lenders. It hopes to cut the six to eight weeks needed to process a mortgage in half and reduce the cost by $1,000 by the end of the decade, says William Kelvie, vice president and chief information officer.

Home swift home, *page 108*

Technology tricks of the trade

Several key technologies – including standards-based value-added networks, expert systems and client/server systems – are creating a revolutionary atmosphere in the mortgage banking industry.

- Value-added networks based on emerging industry implementations of the X12 EDI standards developed specifically for mortgage banking are transforming the home buying process from one that is geared toward the banker into one that caters to the consumer. The networks enable one-stop house shopping with a single real estate broker who can access on-line house listings and pricing information, allow bankers to access and lock in interest rates prior to mortgage approval, and speed the transfer of loan application information.

- Rules-based expert systems are enabling companies to develop custom-automated underwriting programs, based on their own approval criteria, that can approve 60% to 70% of mortgage applications within seconds.

- Client/server-based networks and applications are resulting in re-engineered business processes that promise to make the industry more consumer-friendly. For instance, remote applications designed for laptop computers allow bankers to take mortgage application information from consumers in the field, literally at the point of origin.

OBJECT WORLD

Objects in The Real World 1995

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Keynote Speaker **David A. Taylor, Ph.D.**, President, Enterprise Engines Inc

- ***Theory is Great, But Does it Get the Job Done?***
Thursday, March 23, 9:00 a.m - 10 30 a.m
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1 Aerospace
2 Consultant
3 Education
4 Engineering
5 Government
6 Information Service
7 Insurance/Banking/Financial
8 Manufacturing
9 Professional Service
10 Retailing
11 Software Developer
12 Wholesaling/Distribution
13 Other

C. Your Title
14 Chief Information Officer
15 Consultant
16 EDP Systems/Program/Planning
17 Software Engineer
18 Engineer (other than software)
19 General Management
20 Information Systems Manager
21 Manager, Systems Architecture
22 Manager, Systems Development
23 Marketing/Sales
24 Member of Technical Staff
25 MIS/DP Manager
26 Programming Supervisor
27 Software Development Manager
28 Technology Planning Manager
29 Project Manager
30 Technical Manager
31 Software Developer
32 Development Manager
33 Researcher
34 Programmer
35 Other

D. Number of Employees in Your Company:
36 Under 100
37 100-499
38 500-999
39 1000-4999
40 Over 5000

E. Which Functions Do You Perform in Regard to Object Technology?
41 Final Decision Maker
42 Specify
43 Recommend
44 Approve
45 Develop/Use
46 Resell
47 Other

F. In Which of the Following Object-Oriented Products or Services Are You Interested?
48 C++
49 Smalltalk
50 Eiffel
51 Frameworks
52 Analysis and Design Tools
53 Visual Programming
54 Portable GUI Builders
55 Development Environments
56 Distributed Management Facility
57 Class Libraries
58 [illegible]
59 Databases

G. Internet/E-mail Address
______

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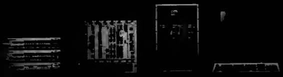
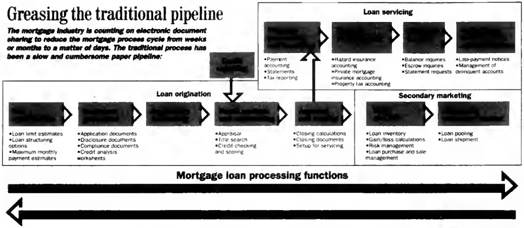


Greasing the traditional pipeline

The mortgage industry is counting on electronic document sharing to reduce the mortgage process cycle from weeks or months to a matter of days. The traditional process has been a slow and cumbersome paper pipeline:



Source: The Tower Group, Wellesley, Mass.

Home swift home

CONTINUED FROM PAGE 104

"If we can cut the cost of a loan by $1,000, we can put thousands of families into homes that otherwise wouldn't be able to afford it," Kelvie says.

To help its customers, the agency has introduced a number of client/server-based tools and a new, open value-added network, Morenet EDI.

Morenet EDI uses industry-defined electronic data interchange (EDI) transaction standards to transfer information and documents among the various players involved in a mortgage application review. It has some 5,400 customers, including mortgage bankers, thrifts and insurance companies. Users of the network can access and process appraisal information, interest rates, various types of loan packages, basic loan application data and credit histories as well as several tools Fannie Mae is making available on Morenet EDI.

> Information technology "needs to play into reducing loan processing cycle times and the cost of origination, and it needs to help the industry become scalable to meet peaks and falloffs in business."
>
> **Das Scheuble**
>
> *Executive vice president of technology*
> *BancBoston Mortgage Co.*
> *Jacksonville, Fla.*

The counseling program, along with Desktop Originator, could reduce the mortgage processing cycle to as little as five days, Kelvie says, because a knowledgeable buyer is better prepared to tackle the electronic paperwork.

Desktop Originator is a Windows-based program for laptops that was beta-tested last year and will roll out this quarter. It enables loan officers to take client application data, perform an on-line credit fetch and lock in prices and interest rates in the field.

The application is expected to reduce the loan approval cycle by eliminating redundancies and the potential errors caused by rekeying the same information over and over. It will also put all the relevant applicant information into the electronic pipeline at the point of origin.

Desktop Underwriter could double the number of mortgage loans an underwriter can approve in a day from five or six to 12 or 15, Kelvie says, which increases a lender's productivity. The program uses a rules-based expert system based on Fannie Mae's hard-copy guide to help lenders arrive at the definitive yes or no to mortgage applications.

Freddie Mac

At Freddie Mac, the goal of automated mortgage processing systems is to make buying a house as easy as a credit-card transaction, says Peter Maselli, vice president of automated underwriting. "The necessary information is available; it's just a matter of using technology to enable the gathering and exchange of the information," he says.

Freddie Mac and Fannie Mae, each created and backed by Congress to insure mortgage loans, share similar goals and use similar technologies. But Maselli maintains an important distinction.

"We are, through our underwriting decision models, re-engineering our credit policies, and Fannie Mae is automating existing policies," he says. "We think the difference is in cost savings — re-engineering can eliminate processes and help you get better cost reductions. It also impacts the expanding marketplace. In addition to lowering costs, we think we can identify and qualify more borrowers."

For instance, the Freddie Mac underwriting system reduces a lender's reliance on strict debt-to-income ratios and can eliminate the need for certain required documentation and verifications.

Like Fannie Mae, Freddie Mac has automated its underwriting rules in an expert system (Loan Prospector) and is also offering an EDI-standards based value-added network, dubbed GoldWorks. Both were piloted last year, and Freddie Mac last month launched a commercial version of Loan Prospector at 14 selected mortgage firms and several participating appraisal firms, credit report companies and loan origination software companies.

> "If we can cut the cost of a loan by $1,000, we can put thousands of families into homes that otherwise wouldn't be able to afford it."
>
> **William Kelvie**
>
> *Vice president and CIO*
> *Fannie Mae*
> *Washington*

Loan Prospector can evaluate a borrower's credit worthiness on the spot.

"Loan Prospector provides two different ways for lenders to obtain credit information within minutes of submitting a loan application to Freddie Mac," says Joseph Reppert, chairman of Strategic Mortgage Services, a Costa Mesa, Calif., multiline mortgage services company whose credit reporting and collateral assessment services are available via Loan Prospector. "The service automatically provides in-file credit reports to lenders. Additionally, lenders can order a merged credit report from a variety of firms."

The result, Reppert says, is a time reduction in gathering credit information. What has traditionally taken weeks has now shrunk "into seconds."

Maselli says the new system could trim as many as 20 to 30 days from the mortgage application process. "Automated underwriting changes the way a lender does business," Maselli says. "And having the network available actually facilitates that change."

Early customers of the Loan Prospector system agree.

"It offers borrowers lower costs and faster turnaround times by eliminating steps and automating manual functions," says Carl Levinson, chairman of Citicorp Mortgage Co. in St. Louis, an early user of the Loan Prospector system. In turn, this gives the mortgage company "greater flexibility in our product offerings, better customer service and facilitates our lending efforts to all of our customers in all of the communities we serve," Levinson says.

James Taylor, executive vice president of Midland Financial Mortgages, Inc. in Des Moines, Iowa, another early user, says, "Loan Prospector has the potential to be the greatest innovation the mortgage industry has seen since the introduction of the mortgage-backed security by Freddie Mac. The service will simplify the mortgage process for home buyers and enable lenders to compete on convenience, reliability and consistency instead of just price."

It may be just the key for opening the door to more would-be homeowners who have so far been left out in the cold. ■

Goft is a freelance writer in New York.

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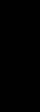
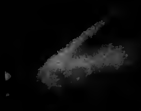




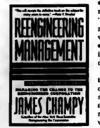
Leadership: The new re-engineering challenge

James Champy looks beyond the tools needed to successfully re-engineer the corporation. The next step is the management process itself.

BOOK REVIEW

BY IRWIN J. SITKIN

In his new book, *Reengineering Management*, James Champy looks at the need for managers to re-engineer *themselves*. It is an important follow-up to his best-selling book, *Reengineering the Corporation*, which he co-authored with Michael Hammer two years ago.



This book uses case studies of several re-engineering successes and failures, allowing it to stand alone as a stimulating read, a good learning tool or an ongoing reference guide for managers or manager wanna-bes.

Champy sets out to help managers understand the concepts and tools needed to re-engineer their own jobs. He describes leadership as "the greatest management tool of all," pointing out that while everyone in an organization must be a leader, there are no leaders if there are no followers.

For me, this book is "deja vu all over again" (to quote Yogi Berra) because it helped me to better understand a major project I was very involved in several years ago as vice president of corporate administration at Aetna Life and Casualty Co. In hindsight, and by all measures, we were very successful in cleaning up a lot of loose ends and reducing head count without leaving a lot of bodies on the floor. Most important, we improved customer service while substantially cutting expenses. In the process, we also discovered that re-engineering is leadership-driven rather than management-run.

Successful re-engineering also requires that management address the following broad issues, according to Champy:

- **Purpose.** Constantly asking "Are we doing the right thing?"
- **Culture.** Creating and maintaining an environment of willingness and mutual confidence.
- **Process and performance.** Constantly asking "Are we concluding the right things the right way?"
- **People.** Finding, attracting and keeping people to do the work.

Champy breaks from the generally accepted concern for "strategy, structure and systems," especially in "the democracy of customers voting with their money." He points to "the great paradox of the human will: that most often, especially in moments of great danger or opportunity," *the only way to gain control is to give it up.*

In fact, Champy says true "re-engineering is a particular way of using our minds, of minding our businesses and anyone can learn it." Clearly he knows it's a journey rather than a destination

James Champy says true "re-engineering is a particular way of using our minds, of minding our businesses and anyone can learn it." Clearly he knows it's a journey rather than a destination.

The book's outline does suffer from structural flaws. For example, Champy frequently makes references to material he doesn't cover until subsequent chapters; and the first mention of the "manager leader" concept appears on page 57. The continuous references to redesign, *re*organize and *re*-engineer also put me off a bit.

Re-engineering roles

On the other hand, the comments from experienced practitioners, along with Champy's own observations (much like a Greek chorus), were very effective. I also found it refreshing that Champy has realized that re-engineering campaigns haven't been universally successful. He says managers and leaders are either ill-prepared (from an educational and/or training perspective) or just won't/can't (from a human nature and/or political perspective) deal with the opportunities they face daily to sharpen their purpose, clarify their organization's culture or improve their processes and the quality of their people.

Champy does draw the appropriate distinction between management and leadership (beginning with the book's subtitle) and includes many comments from managers who ably assumed a leadership role in their company's re-engineering effort. There are, however, too few comments from business leaders at the chief executive officer/chief operating officer level.

Most people live and work in an environment that "grew" amorphously to be what they are. Only a few get (or grab) the luxury of organizing a business from scratch — a clean sheet, so to speak. However, we all must be prepared to perform in a constantly changing world populated by increasingly knowledgeable customers seeking more bang for their buck.

Reengineering Management provides many suggestions for lubricating managers/leaders in an effort to improve customer service. Customers are, after all, the ultimate judges and arbiters of success.

While I found a lot of common sense in Champy's approach, I began to realize that much of what he says may not be so common after all. My advice as you read this book is to take a hard look at where you've been, where you are and where you want to *be* as a foundation for developing a plan for how you want to get there. Champy's message is worth reading. ■

Sitkin is a retired vice president of Aetna Life and Casualty Co.

Intelligence Files

On board for ISO 9000

More and more medium-size American manufacturers are taking a stand for ISO 9000, the international guidelines for quality standards established by the International Standards Organization in Geneva. That is the finding of an annual survey by the National Center for Manufacturing Sciences in Ann Arbor, Mich., and Grant Thornton LLP.

According to the survey of U.S. manufacturers with annual sales between $10 million and $500 million (considered medium-size manufacturers), 79% of respondents are familiar with ISO 9000. Of that 79%, more than 60% are currently ISO 9000 certified or plan to be within two years.

More than half said the credential will help them compete internationally, 41% said they have no choice because their major customers require or suggest it, and many said the certification demonstrates a commitment to quality that will give them an advantage over noncertified competitors.

Meanwhile, the same survey reports that while most medium-size manufacturers devote less than 5% of their operations budget to information systems technology, they recognize the benefits of the technology. In the past two years, 64% of all manufacturers have acquired a major new computer platform or upgraded an existing system, 60% have implemented one or more major software applications such as computer-aided design (CAD), manufacturing resource planning or electronic data interchange; and 52% have invested significantly in consulting, training or other support services. Few reported outsourcing a substantial portion of IS or downsizing their IS departments.

The most common uses of information systems were financial accounting (94%), cost accounting and control (93%), CAD (73%), manufacturing resource planning (62%), bar code or data collection (51%), human resource management (51%), computer-aided manufacturing (51%) and distribution resource planning (41%)

The Best of the Best

If there's one thing that's being driven at Ford lately it's software inspections. So much so, in fact, the company estimates that inspections for improper software installations among individual users have cut maintenance costs in half while improving overall systems quality and customer satisfaction. The Quality Assurance Institute in Orlando, Fla., will honor Ford Motor Co. as one of two companies to receive "Best In Class" Information Technology Practices awards at its 1995 International Information Technology Quality Conference on April 3-7 in Orlando.

Also being honored will be Massachusetts Mutual Life Insurance Co. in Springfield, Mass., which has been successful in almost eliminating version-control defects with its comprehensive and systematic use of a change-control system. For information on the conference or the Best of the Best program, contact Quality Assurance Institute, 7575 Dr. Phillips Blvd., Suite 350, Orlando, Fla. 32819-7273, (407) 363-1111.

Women execs like technology

More female executives are comfortable managing the current technology — from PCs to fax machines — than their male counterparts. That is the finding of a recent study of 602 corporate executives by Roper Starch Worldwide, Inc., a New York-based market research and public opinion polling firm. The study also found that more female chief executive officers than male CEOs (71% vs. 49%) feel very comfortable with technology. More female than male executives are also interested in emerging technologies, including CD-ROM (65% vs. 60%), interactive (64% vs. 56%) and voice-activated computer technologies (63% vs. 50%).

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1 In the perfect office, your software would make it easy to work with other people.

PerfectOffice is the first network suite. Sort of natural, considering it's made by Novell.

It gives you workgroup integration right out of the box—like E-mail, scheduling and task management. (Have you ever tried scheduling a meeting with Microsoft Office?) Plus, PerfectOffice is easier to install and administer on a network.

2 In the perfect office, you'd work between programs without walls.

When it comes to suite integration, a common look and feel is a nice place to start. (Or end, as Microsoft Office does.) But we've taken integration further, offering OLE 2.0 functionality throughout the suite, thus opening up the borders between programs. So you can "drag and drop" a chart from say, Quattro® Pro to WordPerfect® without a hitch. And then edit that chart in WordPerfect as if you were in Quattro Pro.

And thanks to exclusive PerfectFit™ Technology, applications share more common components such as a speller, thesaurus, grammar checker and file manager. Which saves system requirements. (Something else PerfectOffice does better than Microsoft Office.)

The perfect office would have no politics.

Bottom line, you get an entire suite that looks, feels and more importantly, acts like one program. All of which makes it easier to learn and use.

3 In the perfect office, you'd delegate entire tasks to your software.

Imagine software that works for you, not vice versa. Enter new, remarkable QuickTasks.™ They automate entire processes—such as creating and E-mailing a memo—all at the touch of a button. And it's done right from the desktop, automatically switching between programs (unlike Microsoft Office, which forces you to do all the work).

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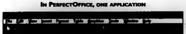
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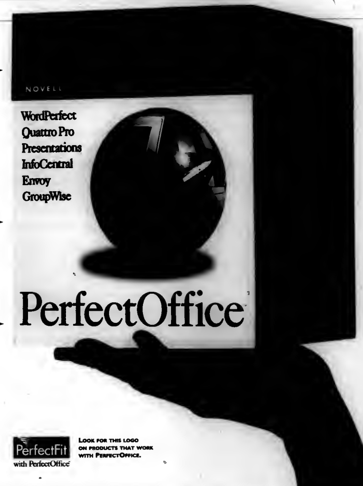

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6 In the perfect office, people would always be willing to give you some help.

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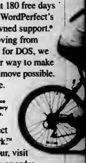

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Calendar

Virus inventor hosts computer security conference

The inventor of the first computer virus, Frederick Cohen, will offer a seminar on computer security, "Protecting Your Information Assets," on March 29-30 in New York. Cohen successfully developed the first virus as an experiment for his Ph.D. studies in the early 1980s.

The conference targets both corporate and government information systems professionals, especially those who use on-line services or transfer funds electronically. Among the areas to be addressed will be detection; prevention and cures for more than 20 types of viruses; eliminating 10 common conditions that motivate people to attack systems; stopping 27 types of attackers; and minimizing the cost of protection. Each topic will be illustrated by case studies from the business, government and defense industrys and the Department of Defense.

The conference will be held at the Doral Inn, 541 Lexington Ave., New York. The cost is $795 and includes a copy of Cohen's book (released this month) *Protection and Security on the Information Superhighway*. For information or to register, contact Jerry Fireman, Jerry Fireman, Inc., Birmingham, Mich. (810) 540-5810.

March 26-April 1

Sixth Annual Commercial Lending Executive Conference. Irving, Texas, March 26-28 — Theme: "Banking on Change: Tomorrow's Bank, Today's Leaders." Contact: BancA/Andersen Consulting, Dallas, Texas (214) 761-8127.

National Automated Clearing House Association 1995: Electronic Payments, Business Solutions. New Orleans, March 26-29 — Conference focuses on radical changes in the way corporations, consumers, governments and financial institutions exchange information and payments. Contact: National Automated Clearing House Association, Herndon, Va. (703) 742-9190.

The Natural Conference. Boston, March 26-29 — Conference focuses on topics of interest to users and encompasses areas of systems development that may or may not relate to Software AG products. Areas of interest will include event-driven programming, graphical user interface design, object-oriented programming and design and programming techniques in the client/server environment. Contact: Jim Wisdom, The Natural Conference Committee, Boston, Mass. (617) 342-3660.

Financial Executives Institute's Information Management Issues Conference. San Jose, Calif., March 27-28 — Contact: Laura Zepp, Financial Executives Institute, Morristown, N.J. (201) 898-4629.

Networld/Interop '95. Las Vegas, March 27-31 — The session topics include enterprise applications, networking management, practical LANs, network connectivity, practical Internet and switched networks. Admission is free. Contact: Softbank Expos Conference Co., Foster City, Calif. (800) 488-2883.

Automated Manufacturing Exhibition and Conference. Greenville, S.C., March 28-30 — Contact: South Carolina State Board for Technical and Comprehensive Education, Columbia, S.C. (803) 737-0355.

Advanced Manufacturing Technology Conference. Cleveland, March 29 — Contact: Advanced Manufacturing Research, Inc., Boston, Mass. (617) 542-6600.

APRIL 2-8

Data Warehouse & Decision Support Systems '95. Rockville, Md., Arlington, Va., April 3-6 — Sponsored by Barnett Data Systems. Fees: one or two attendees is $1,295 per person; three to nine attendees is $1,000. 10 or more is $900. The exposition costs $25 per person. Contact: Barnett Data Systems, Rockville, Md. (301) 762-1288.

SAS Users Group International (SUGI) Conference. Orlando, Fla., April 2-5 — Topics include Implementing Cross-Functional Financial Consolidation Systems, Issues in User Data Access and Reporting and Regulatory Approval. Contact: SUGI 20, Cary, N.C. (919) 677-8000.

Seventh Annual National Managed Health Care Congress. Washington, April 2-5 — Contact: National Managed Health Care Congress, Burlington, Mass. (617) 270-6000.

The 12th Annual Conference and Exposition of the Information Systems Security Association (ISSA). Toronto, April 2-5 — Conference theme, "Learning From Each Other," will be conveyed through topics such as security awareness; client/server, distributed computing security; telecommunications/network security and vendor security solutions. Keynote speakers include Terry F. Lenzner, chairman of Investigative Group, Inc. in Washington. Contact: Lona Kovacs, ISSA International, Glenview, Ill. (708) 699-6441.

Infocom '95: The Conference on Computer Communications. Boston, April 2-6 — Contact: Celia Desmond, Stentor Resource Centre, Inc., Mississauga, Ontario (905) 615-6507.

Application Development Conference & Exposition. New York, April 3-6 — Topics include "Enterprise Client/Server Development," "Building Enterprise Reliable Systems," "Object-oriented Strategies and Enterprise Development," "Project Championship," "Enterprise Application Architectures," "Transitioning Legacy Systems to Client/Server" and "The Year 2000: Problems and Solutions." Contact: Software Productivity Group, Northboro, Mass. (508) 393-7100.

Introduction to Globally Scalable Parallel Computing. Ithaca, N.Y., April 4 — Contact: Cornell University's Engineering and Theory Center, Ithaca, N.Y. (607) 254-8686.

Application Development Conference & Exposition. New York, April 4-5 — Fees: Three-day full conference and exposition package is $750; one-day attendance is $300. Contact: CMP Applications, Inc., New York, N.Y. (516) 733-6770.

Training a Team-Based Organization. Nashville, April 5-7 — Sponsored by the Association for Manufacturing Excellence (AME). Fees: $700 for AME members; $825 for nonmembers. Contact: AME, Wheeling, Ill. (708) 520-3282.

"From Form to Function Symposium." Edison, N.J., April 8 — This symposium will cover "Electronic Forms Design and Solutions," "Paper to Electronic Transformation," "Managing Electronic Forms," "Workflow Enhancement Technologies" and "Imaging Systems with Forms Automation." Contact: Spectrum Systems & Resources, Inc., Parlin, N.J. (908) 727-1112, Ext. 9.

Re-engineering Business Processes Through Information Technology Conference. Cambridge, Mass., April 6-7 — Contact: Joanne Arevri, Center for Advanced Technology, Inc., Manlius, N.Y. (800) 655-1753.

APRIL 9-15

American Management Association's 66th Annual Human Resources Conference & Exposition. Chicago, April 9-12 — Registration fees: Member rate is $1,095; nonmember rate is $1,195. Contact: American Management Association, Saranac Lake, N.Y. (800) 262-9699.

Innovative Thinking Covergence: The Conference for Both Sides of Your Brain. Sante Barbara, Calif., April 9-12 — Keynotes: Mike Veeck, owner of the St. Paul Saints; Margaret Wheatley, Ed.D., author of *Leadership and the New Science*; Doug Hall, author of *Jump Start Your Brain*; George Land, co-author of *Breakpoint and Beyond*. Fees: $1,495 for nonmembers; $1,295 for Innovative Thinking Network (ITN) members. Contact: ITN, Santa Barbara, Calif. (805) 964-5363.

APRIL 16-22

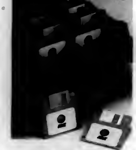
Embedded Systems Conference East. Atlanta, April 18-20 — Embedded systems products and services. Exhibits cover the full spectrum of development tools, hardware products and services for embedded design. Contact: Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

The Conference on Interactive Marketing. New Orleans, April 19 — Contact: Bender, Goldman Helper, Los Angeles, Calif. (310) 473-4147.

APRIL 23-29

"The Evolution of Object Methods." Chicago, April 24; New York, April 25; Dallas, April 27; San Francisco, April 28 — Attendees will learn about the unification of object-oriented methods and the state of object methodologies. Contact: Rational Software Corp., Santa Clara, Calif. (408) 496-3600.

AMMES Roundtable Seminar. San Jose, Calif., April 26-27 — Two-day seminar and exhibition will discuss the benefits of Manufacturing Execution Systems software for real-time shop floor control. Contact: Manufacturing Execution Systems Association, Pittsburgh, Pa. (412) 781-9511.



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COMPUTERWORLD
Client/server faces up to enterprise
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The CW Guide to RISC Servers

Squeezed from the bottom by PCs and facing tough competition at the high end, RISC vendors are repositioning like never before

RISC servers

By Cheryl Gerber

Behind the success of the high-end RISC server market, vendors are under pressure at the low end from hardware long considered separate and unequal — that of traditional PC vendors.

Users who once would buy only RISC servers to host their distributed computing environments are now combining or replacing low-end RISC servers with high-end PCs.

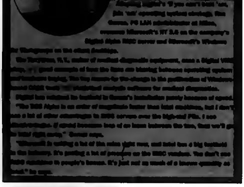
"This year we'll probably buy two RISC servers and two high-end PCs. If Intel Corp. hadn't come out with the Pentium, we would buy four RISC servers instead," says Ed Yu, systems analyst at the University of South Carolina in Columbia.

Yu says the motivation to purchase high-end PCs could be chiefly psychological. "Most of our clients just feel more comfortable with the PC NetWare environment than they are with Unix," he says.

Whether the reason is perception or reality, the fact is the low-end and midrange market for RISC Unix servers was frozen last year and will be again this year by the anticipation and capabilities of Microsoft Corp.'s Windows NT, says John Logan, executive vice president at Aberdeen Group in Boston.

"Advanced development shops in Fortune 100 companies have been led to believe that they can get 100G-byte-plus databases operating on NT with SQL Server in 1995, and they're responding to it," Logan says.

Unlike low-end servers, high-end RISC servers are faring quite well. A study by industry analyst Andrew Allison released in the January/February issue of his "Inside the New Computer Industry" newsletter valued the 1994 RISC market at $29.3 billion in revenue, with Hewlett-Packard Co. and Sun Microsystems, Inc. in the lead. HP's market share was estimated at 32.7% and Sun's at 19.8%. HP's RISC server growth rate was $2.02 billion, while Sun's was $740 million.



Adopting Digital's 'If you can't beat 'em, join 'em' operating system strategy, Ron Carran, PC LAN administrator at Miles, [illegible] Microsoft's NT 3.5 on the company's Digital Alpha RISC server and Microsoft's Windows for Workgroups on the client desktops.

The Tarrytown, N.Y., maker of medical diagnostic equipment, uses a Digital VAX [illegible] good example of how the lines are blurring between operating system and hardware buying. The key reason for the change is the proliferation of Windows-based GUI tools [illegible] statistical analysis software for medical diagnostics.

Digital has retained its foothold in Carran's installation purely because of speed.

"The DEC Alpha is an order of magnitude faster than Intel machines, but I don't see a lot of other advantages to RISC servers over the high-end PCs. I see [illegible]. If speed becomes less of an issue between the two, then we'll go Intel right away," Carran says.

"Microsoft is making a lot of the rules right now, and Intel has a big foothold in the industry. It's putting a lot of pressure on the RISC vendors. You don't see RISC machines in people's homes. It's just not as much of a known quantity as Intel," he says.

Competition heats up

This growth is drawing new high-end competitors into the fray. In addition to traditional mainframe and minicomputer hardware makers, RISC server vendors face competition from Siemens/Nixdorf Informationssysteme AG, the German company that dominates the Western European Unix server market. The company entered the U.S. market last fall with its RM series of 64-bit servers.

Users are responding to these developments by implementing a split server strategy. For example, Steve Huso, administrator of pricing at Northern States Power Co. in Eau Claire, Wis., has also begun using PCs where he once used RISC servers. But RISC servers still have their place, he says.

"The PC has become such a standard in our company that it's more acceptable now to use them for increasingly sophisticated applications," Huso says. "The move off the mainframe and minicomputer to the RISC server has increased the demand for RISC servers, but overall, they still fit into a specialized category."

Software more than architecture is driving many users' decisions to hedge their bets and invest in both PCs and RISC servers. Users are attracted by the simplicity and hardware portability of NT compared with the unresolved complications caused by the multiple versions of Unix.

"A lot of people say Unix is Unix. That's fine at the user level, but it gets difficult at the systems level," says Dave Nutile, senior information resource management and procurement official at the U.S. Naval Observatory in Washington.

"Whether it's IBM, DEC, Sun or HP, the biggest headache of all these Unix systems is the fact that although the operating systems look the same initially, the different flavors of Unix are different for the systems people. You still have to train systems people on that particular machine's version of Unix," he says.

"The operating system portability is clearly an advantage for NT," says Nancy Stewart, senior industry analyst in client/server computing at Dataquest, Inc. in San Jose, Calif. "The continuing lack of a unified Unix has also hindered the growth of the RISC server market even though RISC servers have clearly outpaced proprietary servers."

Head-to-head with NT

RISC Unix vendors have been quick to open their wallets to counter the competition from NT. For example, Sun's Solaris now runs on SPARC, Intel and PowerPC platforms. Last September, Sun introduced the Netra line, which launched an internet and a systems management server, both aimed at supporting network services beyond the typical Novell, Inc. NetWare printer and file-sharing servers that populate the PC market.

Yet despite efforts by RISC vendors to render their Unix-based operating systems compatible with various hardware platforms, user concerns about hardware incompatibilities continue to plague RISC server vendors. For example, far more video and SCSI cards work with Intel machines than with RISC servers.

"It's not worth putting up with the RISC server hardware incompatibilities when Intel-based servers are more easily interfaced with hardware components," says Ron Carran, PC LAN administrator at Miles, Inc., a

under PRESSURE

Dave Cutler

maker of medical diagnostic equipment in Tarrytown, N.Y.

Some users, however, couldn't care less about the RISC vs. complex instruction set computing (CISC) quandary. "I always look at the software first, then the price/performance ratio. Who cares what hardware it runs on?" asks Mark Flato, manager of information systems at WellTech, Inc., an oil field service company in Houston.

RISC has its advantages

Despite the gains by PC vendors, there remain solid advantages of RISC Unix over PC Windows (see story page 124). For one, the various forms of Unix are optimized for their particular hardware platforms. For another, users say they get good service and support from RISC server vendors, whereas PC vendors must rely on partnerships for support. And though the price/performance gap has been closing between CISC and RISC, the RISC Unix platform still has a longer history of better performance, security and systems and network management than PCs.

In the future, Intel's chip production may progress to the point where its processors incorporate the value of RISC. "The Intel CISC instruction set will be modified. At some point, Intel will have to cut itself off from the past and move to the future. The logical path is to go to a RISC instruction set," Flato says.

Meanwhile, however, the low prices, improving performance and convenience of PCs are closing in on RISC systems. For example, while Flato still prefers RISC, he says he'd change vendors in a heartbeat if there were good reasons.

"Why, I can practically buy PC hardware in the grocery store," he says. ■

Gerber is a freelance writer in San Francisco.

WHY UNIX WORKS

By Jonathan Eunice

There are several reasons Unix-based RISC servers still technically outmatch PC servers. Here are a few examples:

• ***Scalability*** — PC-based products are generally limited to uniprocessors. Some are beginning to scale to two processors, or in limited cases, four. Unix, in contrast, scales to four processors easily. Well-tuned implementations scale to eight, 16 or more.

• ***Availability*** — Too often PC servers are just relabeled PCs not designed for specific purposes. While starting at a higher price point, RISC/Unix systems provide error-correcting memory, more extensive diagnostics, hot-pluggable disk drives and other "engineering niceties" that increase real-world reliability. Moreover, RISC/Unix systems have rather extensive multisystem clustering.

• ***Functionality*** — Not only does Unix have all the function a quarter-century of evolution can give, it also remains the hotbed for current server innovations. The Internet and the World-Wide Web are both Unix phenomena. And 64-bit architectures, with their advanced file systems and support for large databases, are only available on Unix.

• ***Openness*** — While the PC environment is devoted to "volume openness," Unix continues to provide the alternate definition of "specification openness." Having multiple Unix developers each with their own implementations does complicate software portability, especially when compared with the sole owner/developer model of the PC. On the other hand, multiple independent developers offer more evolutionary options, more choice of vendors and the widest range platforms.

Both its multiyear lead and its vibrant development efforts augur well for Unix continuing to offer both technical and market advantages.

Eunice is research director at Illuminata, a technology assessment firm in Hollis, N.H.

BENCHMARKS: Benefits and caveats

By Kevin Burden

TOTAL CONFIGURATION COST – Between $1 million and $1.1 million

Solaris 2.4

AIX 3.2.5

Informix Online 5.0

Between $1.8 million and $2.1 million

Sun SPARCenter 2000E c/s with four front ends

Solaris 2.4

Informix Online 5.0

Main problems plaguing the credibility of benchmarks

Results are as of Feb. 10

Many users who are in the market for a Unix-based RISC server turn first to benchmarks from the Transaction Processing Performance Council (TPC), System Performance Evaluation Corp. (SPEC), Neal Nelson, Inc. or Aim Technology, Inc.

Over the years, these benchmarks, particularly those from TPC, have been criticized for their lack of real-world accuracy and the amount of involvement vendors are allowed to have in the testing. Is this criticism valid? If so, are these benchmarks good for anything anymore?

The answers are yes and yes, according to analysts and users.

The tests are typically rendered by the vendors, and you can bet that they have probably done everything they could within the constraints of the benchmark to get the most favorable ratings.

"There is a lot of flexibility allowed in how memory is managed and with the compiler used," says Andrew Allison, a consultant and the editor of "Inside the New Computer Industry," in Carmel, Calif.

At best, benchmarks provide only an approximation of a server's processing capability, and even that is not always helpful to those in the trenches.

"Vendors are able to tweak and throw tons of equipment on there, which isn't real-world unless you work for a company that doesn't have a budget," says Bruce Kirk, senior programmer at Domecq Importers, Inc. in Old Greenwich, Conn. "It doesn't really help us to know a certain system can do 2,000 transactions per second when we will never need it."

Allison and others say the best use for these benchmarks is to create short lists of products to consider. If you have the right information on the test, namely the total price of the configuration tested, benchmarks can help eliminate many of the choices that do not match required performance needs or are off the price scale.

Without price, benchmark ratings hold little weight because scores can increase exponentially on high-priced, elite configurations. But because price/performance figures seldom land in product advertisements, it's up to the user to go the extra step and ask the vendor or the benchmark organization for the information.

Once the search is narrowed to a manageable number of choices, a user's next step is to contact those vendors to see how well their applications will run on the selected systems.

The most important difference among the leading RISC server benchmarking companies is that TPC and SPEC are industry-sponsored organizations. This means vendors have some control over the rules governing the tests. AIM Technology and Neal Nelson are independent companies that vendors pay to run the tests.

TPC is a transaction-processing benchmark. SPEC focuses exclusively on measuring floating-point performance. While Aim Technology and Neal Nelson use multitasking tests to depict Unix systems performance. The current version of TPC, TPC-C, has replaced TPC-A and TPC-B, both of which lost credibility after years of unaudited rule bending. The TPC appears to have learned a valuable lesson and has enforced more rigorous guidelines for TPC-C. The main obstacle TPC-C needs to overcome now is not credibility but migration and execution cost.

TPC-C takes twice as long to run as TPC-A and costs about four times as much, which makes it too costly for many smaller vendors. "Only the biggies like IBM, Hewlett-Packard Co. and Sun Microsystems, Inc. are running TPC-C, so you don't get a good representative sample," Allison says.

Aim Technology focuses on testing the complete system by examining all the individual components, such as disk speed, floating point and system calls. But while knowing the performance of individual components might help some users, most are concerned only with the overall system. "Users typically do not buy individual components at the hardware level. If you're buying an HP system, chances are you will also buy HP disks," says John Logan, executive vice president at Aberdeen Group in Boston. "Knowing the speed of everything doesn't translate into real-world benefits." ■

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard.

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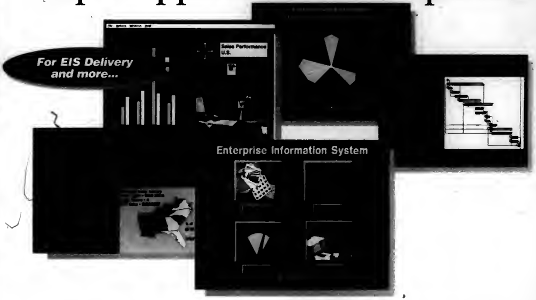

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#1 UNIX platform for RDBMS

SCORECARD: Top 5 RISC servers face off

By Kevin Burden

Proprietary variations in RISC servers makes shopping for them more like shopping for midrange machines than desktop PCs. In theory, Unix is supposed to be an open environment. The reality is it's more proprietary than users want.

This Scorecard evaluates established RISC servers from the Top 5 Unix vendors. These include Hewlett-Packard Co.'s HP 9000/800, IBM's RS/6000 Powerserver 900, Data General Corp.'s Aviion AV 8500, Digital Equipment Corp.'s AlphaServer 2100 and Sun Microsystems, Inc.'s SPARCcenter 1000.

The proprietary traits of these servers come from their individual Unix derivatives and unique core processors. But even if these systems are not as open as vendors let on, having minicomputer traits is advantageous as long as one of them has a high level of reliability.

The users of each system indicated very high satisfaction with reliability and ease of use on a network. The differences surfaced in processing performance and responsiveness of service.

Overall reliability

The reliability of Unix servers has been feverishly scrutinized by users previously spoiled by the solid reliability of minicomputers — but the servers appear to be passing the test.

Except for Sun's SPARCcenter 1000, each competing server received a rating of 8.0 or better for reliability — high scores compared with most Scorecard marks. System availability in all the servers is reinforced through redundant power supplies, RAID and auto shutdown and restart mechanisms. But the SPARCcenter's score may be due to Sun's poor service image, said Nancy Stewart, senior industry analyst at Dataquest, Inc. in San Jose, Calif.

Recovery from failure

Accentuating the importance of reliability and uptime, users scored system recovery second in importance. But ratings show users were not as satisfied with recovery as with reliability.

The ratings, however, don't necessarily mean users were unhappy with the recovery abilities. It's more likely users were unhappy they were forced to recover at all.

"We had several instances where HP was giving us bad components, like processor and I/O boards. It was very frustrating because of their reliability claims," says Ron Pentz, computer-aided engineering systems manager at Molex, Inc. in Lisle, Ill.

Each vendor offers additional system availability options that can include RAID or standby systems that ramp up when a system failure is detected. But the options are supplementary, expensive and not every user site has them.

Processing performance

For the third year, DG's Aviion scored the highest performance rating of the Scorecard. But instead of raw speed, a more plausible reason for this is that Aviion's installed base is comprised mostly of former MV users who are very content with the performance.

But DG's success might be overshadowed by its commitment to the 50-MHz Motorola, Inc. 88x00 chip, a processor that might be left behind if Motorola focuses on the IBM/Apple Computer, Inc. co-sponsored PowerPC chip.

Also for the third year, Sun scored lowest in performance. "In raw speed, SPARC has always been behind the curve," Stewart says. The SuperSPARC processor runs at 60 MHz. Sun does have a 75-MHz chip available for its desktop machines but has not yet ported the chip to its servers. IBM offers either a 62- or 71.5-MHz chip; HP delivers 48-, 64- and 96-MHz speeds; and Digital's Alpha AXP screams at 190 MHz.

Responsiveness of service

Quality of support is consistently ranked among the Top 6 most important attributes in Buyers' Scorecards. However, in this case, it ranked 10th, six spots behind responsiveness of service. This is not surprising because time is of the essence when servers fail.

Barring Sun, users are generally satisfied with their vendors' hop-to-it response. But Sun is not sitting still. In January, it added a new service to its SunSolve support program, called Sun NetRequest, an electronic-mail tool that lets customers convey technical information and request service from the appropriate technical support level.

IBM and HP users rated their satisfaction with responsiveness the highest. These findings coincide with a separate Buyers' Satisfaction Scorecard survey conducted on PC hardware support, [CW, Dec. 5, 1994] in which HP and IBM again posted the highest satisfaction ratings among the leading direct-support providers. ■

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard

RATINGS are based on a 1-to-10 scale, where 10 is best. Average score represents a mean of all ratings. Categories are the Top 6 most important areas identified by users.

BUYERS' SATISFACTION SCORECARD	Aviion AV 8500	RS/6000 Powerserver 900	SPARCcenter 1000	AlphaServer 2100	HP 9000/800	
AVERAGE SCORE:	7.5	7.4	6.9	7.4	7.4	Comments:
Overall reliability:	8.2	8.0	7.4	8.2	8.0	Reliability has been passing the test
Recovery from failure:	7.1	7.2	6.9	6.7	6.9	All offer fail-over systems for easier recovery, but few respondents used them
Processing performance:	8.1	7.5	7.0	7.8	7.7	Sun's SuperSPARC processor lacks the speed of its competitors
Responsiveness of service:	7.0	7.6	6.2	7.2	7.4	Speed of service is more important than quality of support
Value for the dollar:	7.6	6.7	7.0	7.5	7.0	Availability and cost of applications contributed to the ratings
Ease of use on a network:	7.2	7.2	7.1	7.1	7.3	Respectable ratings, none appear overly cumbersome

50 users per product were surveyed except for Data General, which had 30 users

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Hewlett-Packard Co.
Palo Alto, Calif.
(800) 752-0900

RS/6000 Powerserver 900
IBM
Armonk, N.Y.
(800) 426-3333

Aviion AV 8500
Data General Corp.
Westboro, Mass.
(800) 328-2436

AlphaServer 2100
Digital Equipment Corp.
Maynard, Mass.
(800) 344-4825

SPARCcenter 1000
Sun Microsystems Inc.
Mountain View, Calif.
(800) 821-4643

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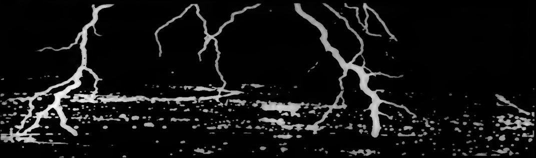

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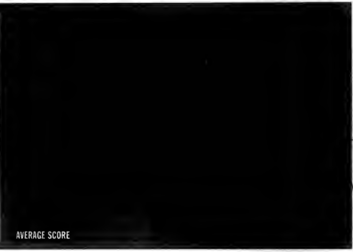
FIRING LINE: TANDEM'S HIMALAYA, a high-quality upgrade hampered by slow service

By Kevin Burden

The scalability of RISC servers is being put to the test by vendors of all varieties, including AT&T Global Information Solutions, Data General Corp., Digital Equipment Corp., Hewlett-Packard Co., IBM, Pyramid, Inc., Sequent Computer Systems, Inc., Silicon Graphics, Inc. and Sun Microsystems, Inc.

"The Himalaya architecture unfolds to become more open with each hardware and software release. We're currently running four generations of disk drives."

James Lance, senior vice president of IS The Elder-Beerman Stores Corp.



But few have raised it to the level of Tandem Computers, Inc., a vendor known for proprietary large-scale fault-tolerant systems. The company's latest offering, called Himalaya, is a parallel-processing, continuously available server line with unequaled reliability, according to users who evaluated it.

Priced at more than $200,000, the Himalaya K10000 is not for the average company. But if nonstop service is required, the Mips Technologies, Inc. processor-based Himalaya teamed with its NonStop SQL transaction processing database management system might be considered a good value. Tandem began lowering its prices 35% to 45% per year over the past two years.

The evaluators were a medical laboratory, a bank and two retail chains. The format for this evaluation was developed with help from Howard Rubin and Associates and Technology Investment Strategies.

Overall reliability

Himalaya is fully fault-tolerant from its power subsystems to multiple processors that share multiple simultaneous workload tasks. The only downtime any of the evaluators experienced was during migration where most problems were caused by user error

Laboratory: "We lost a section of CPUs while making our software conversions through the fault of our own people because they were unfamiliar with the new release of the operating system."

Recovery from failure

In the case of failures beyond the system's control, such as power outages, Himalaya delivers an auto-restart mechanism, which one evaluator said allowed his company to employ a single operator per shift. For failures caused by software or operator error, Tandem delivers several products built in to the operating system to assist in recovery.

Bank: "The Remote Duplicate Database facility keeps our database running on a second system if the system goes down."

Laboratory: "One of our operators formatted an old disk when he thought he was formatting a new one. Fortunately, Tandem's Transaction Monitoring Facility keeps an audit trail of database changes. We just typed a file recovery command."

Processing performance

Because each of the evaluators upgraded from older Tandem lines, speed improvements were very noticeable

Laboratory: "We went from a 12-processor Cyclone R running out of horsepower to an eight-processor Himalaya, and we can still grow it to twice its current size if we need to"

Retail chain No. 2: "The new operating system eliminated the 256-process ceiling imposed per CPU."

Responsiveness of service

As vendors grow their product lines, service response time and quality can suffer if the support staff does not keep up with the changes. Tandem is no exception, according to these evaluators. But more important, the evaluators complained about Tandem's lack of service flexibility.

Laboratory: "They are not flexible at all. We have an 8 a.m. to 5 p.m., Monday through Friday service, but if we have a failure at 3 p.m., and the system keeps running, we typically wait until after 5 p.m. to take it down. Now we have to pay extra."

Scalability

The Himalaya K10000 can scale up to 16 processors and 2,048M bytes of memory, which is ample room, the evaluators said. Those requiring more power can move to the new K20000 line available this month or simply exchange processor boards that still deliver full application compatibility.

Bank: "Unlike the symmetrical multiprocessing technology where you only get a certain percentage [of the power] when you add CPUs, you get nearly 100% when you add processors in the Himalaya."

Value for the dollar

Since Tandem began lowering hardware prices, value has been improved. However, software prices still need attention.

Bank: "There hasn't been much movement on the software pricing, which is a huge part of our overall bill." ■

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard.

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   - 65 Communications Systems/Public Utilities/Transportation
   - 70 Mining/Construction/Petroleum/Refining/Agric.
   - 80 Manufacturer of Computers, Computer-Related Systems or Peripherals
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   - 41 Engineering, Scientific, R&D, Tech. Management
   - 60 Sys. Integrators/VARs/Consulting Management

   CORPORATE MANAGEMENT
   - 11 President, Owner/Partner, General Manager
   - 12 Vice President, Asst. VP
   - 13. Treasurer, Controller, Financial Officer

   DEPARTMENTAL MANAGEMENT
   - 51 Sales & Mktg. Management
   - 70 Medical, Legal, Accounting Management

   OTHER PROFESSIONAL MANAGEMENT
   - 80 Information Centers/Libraries, Educators, Journalists, Students
   - 90 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)
   Operating Systems
   - (a) Solaris
   - (b) Netware
   - (c) OS/2
   - (d) Unix
   - (e) Mac OS
   - (f) Windows NT
   - (g) Windows
   - (h) NeXTstep

   App. Development Products ☐ Yes ☐ No
   Networking Products ☐ Yes ☐ No

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Newbie BASHING

BY J.C. HERZ

"Newbies" — or novice Internet users — are coming [illegible] hotly anticipated book, Surfing on the Internet, author [illegible] newcomers (does that mean you?), complete with [illegible] and smarmy advertisers.

This is the snobbery of the people on the Mayflower *looking down their noses at the people who came over on the second boat!*
— Mitch Kapor, founder, Electronic Frontier Foundation

BOOK EXCERPT

The newbies are coming! The newbies are coming! New users are flooding onto the Internet at the rate of a million per month. And from what I've seen, old-timers would just as soon they stay home. The 'net is the most perfect form of anarchy to come along since the Golden Horde stomped through central Asia, and many 'net veterans would prefer it stay that way. The 'net works, they argue. Don't mess with it.

And it does work, for the most part. But the population explosion is putting a lot of stress on the system. Not so much on the physical system of hardware and phone lines, but the social structure is beginning to fray. Noise levels are up. Signal quality is down. The fringe cachet of the place is being engulfed by a wave of ill-informed mainstreamers.

Even die-hard 'net addicts now admit that it's impossible to wade through the daily traffic. We have on our hands what Steve Crocker, an armchair 'net sociologist at Youngstown State University, calls a "human bandwidth problem." The hardware is whirring away just fine (for now), but the danger of human overload is more serious.

"A limiting factor in the usefulness of the 'net to individuals is the inability of a person to read more than a minute fraction of even the news they are actually interested in," Crocker says. "I think we all have wished that the 'net were more universal. We are vastly under represented in areas such as poor people, industrial workers, housewives, young children, policy makers and senior professionals. We need to find effective means to outreach to all these groups and more."

The 'net's antiestablishment politics are contradictory. Most of us realize that the 'net is an elite community, and the idea of expansion in the name of social justice is appealing. On the other hand, veterans cherish the 'net's fast-fading underground flavor and their own edge status. Very few people are against universal access per se, but the attitude is: Send us your tired unwired masses yearning to post free, just as long as they're hip, tech-savvy and think like us. Anything that puts the 'net's unique vibe in jeopardy is considered noise or, worse, cultural pollution.

There is no border control on the internet. There is no Digital Department of Immigration and Naturalization to monitor the cultural temperature of the 'net and limit the influx of aliens, whom Crocker defines as "the bad guys, the 'net-fascists, the conspiracy, the reactionaries, the FBI/CIA/NSA/IRS, the politically correct liberals, the corporate culture, the yuppies, the media elite, the entertainment industry, the mindless and anyone else who we can agree by consensus ought not to be allowed to dominate our consciousness, our culture or our 'net."

For the first time, a highly educated elite has rallied to protect the fragile culture of a tribe under siege from the outside world, and the tribe is us.

The immediate reaction when the news magazine-driven wave of colonizers landed was to haze them in hopes that they would frighten easily, wither and fade away. But the legal bloom of newbie bashing could only last so long before the old guard flame brigade started running short of lighter fluid. Gradually, they realized that trying to frighten away newcomers was like tossing deck chairs off the *Titanic* in hopes that it would regain buoyancy. Besides, there was another strategy, less combative and possibly more effective: ASSIMILATE THEM.

A kinder, gentler sandbagging strategy is in force: Educate the new-

Newbie bashing, *page 130*

Herz has written for *The Boston Phoenix*, *Harvard Crimson*, *Miami Herald* and *Esquire* and is a member of the *Wired* magazine 'net surf team. A recent Harvard University graduate, she lives in Miami Beach.

This is an excerpt from *Surfing on the Internet*, copyright 1995 by J. C. Herz. Reprinted by permission of Little, Brown and Co. The book is available this month.

Newbie BASHING

CONTINUED FROM PAGE 129

bies. Convert them. Make them swear allegiance, then put them on patrol for other greenhorns because, after all, newbies aren't evil. They're just ignorant.

Bringing newbies into the fold is especially important in light of the latest wave of invaders, the conquistadors who come not to settle but to mine, rape and pillage the 'net for every cent it's worth.

Yes, friends, I'm talking about corporate advertisers.

Something must be done about these people, lest we all wash away in a tide of junk E-mail and postvertisements. This much is agreed. It's the closest thing to unanimity in 'net history. But no one seems to know what is to be done or who is going to do it, or even the appropriate venue to stage some show of 'net consensus.

Chris Keroack, a graduate of Hampshire College, suggests that the 'net meet advertisers on their own turf. "The text of a full-page ad in *The New York Times*, *Boston Globe*, *Chicago Sun-Times* and other major newspapers, as yet to be determined, would be composed as a public service announcement to all those who want to advertise on the 'hip new information superhighway.' It would serve as a wake-up call to those who tend to blunder into new technologies and places without adequately researching them first, and if it stops even one major company from blindly advertising and generally harassing Internet/Usenet users, then it will have served its purpose."

The problem with this plan is how to arrange logistics in an anarchy. If everyone on the 'net gave their literal 2 cents for a change, we'd have quite a piggy bank. But collecting those pennies is one hell of a job.

Keroack is right about one thing, though: "Until it is universally recognized that the Internet is a culture and not just a mechanical, soulless means for the transmission of information, people will have to be reminded that there are rules and customs here just as in any other group of people."

Netiquette isn't just a set of social conventions. It's a political issue. 'Net customs are important because they have allowed us to participate in a truly democratic mass medium, and that's something worth defending.

Crocker says, "It does not take a rocket scientist to realize that 'they' decide what appears in newspapers, magazines, books and on radio and TV, whereas we decide what will appear on the 'net.

"Ultimately we may actually realize the ideal of the old New Left (and the Founding Fathers) of democratic participation of the people in shaping political programs. I keep coming back to the image of old Ben Franklin and his printing press. Franklin understood that the British Empire was a dinosaur. Its bandwidth was no longer sufficient to support the extent of its body. So he used the innovative medium of his time to create bandwidth, thus setting into motion a form of social organization which could move faster and plan smarter than its obsolete competitor," Crocker says.

"So today we have the 'net, the last accidentally uncensored mass medium in existence. Is it a toy of the rich and the ivory tower, or is it potent? . . . Will we allow ourselves to be possessed by the vision of a 'net whose purpose is to help create and support HEROES? Or will we dismiss it all with a keystroke and get back to the REAL FUN STUFF on alt.flame.Joe.schmuck.the.world's.greatest.poophead?"

This question lies at the root of newbiephobia. The nightmare is that newcomers, once they discover the 'net's more trivial kicks, will lose sight of its broader potential. There will be enough newbies on-line to hijack the culture, and when they get lost in the bullshit, they'll drag the whole shooting match down with them. A precious opportunity will be lost forever, and big corporate media suits will lean back in their executive swivel seats and breathe a sigh of relief.

That's the fear. That's the impetus behind newbie bashing. That's also why 'net veterans are now turning evangelist. If you can't drive them away, the reasoning goes, bring them on board. And make them row. Because the way things are heading, we're going to need lots of warm bodies down in the galley. ■

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Computer Careers

RETOOLING success

Despite overwhelming odds and a few casualties, staff retraining efforts are working at companies moving to client/server

Joseph Mernar didn't see how a client/server environment would ever run as smoothly as the mainframe he'd been working on since college. But when his firm, Allied Signal, Inc. in Morristown, N.J., decided to migrate, he accepted his fate: Keep rowing or get out of the boat.

"My first impression of retooling was, 'It can't work,'" recalls the 29-year-old information systems staffer. "I wasn't a PC bigot; it just seemed that it took too many pieces to make it function like a well-oiled machine."

Looking for another job crossed Mernar's mind, but the whole industry was going the same way. "It was either learn client/server or get out of the business," he says.

Mernar, who had been a mainframe programmer for six years, underwent extensive company-sponsored training in Microsoft Corp.'s Visual Basic and Oracle Corp.'s products, but he remained skeptical throughout the first year of transition. "We had a lot of training, but there were still no new applications," he says.

Then he watched a fellow staff member write a Visual Basic application. "Seeing someone put together a distributed client/server application was evidence that this could work," Mernar says. "I was thinking, 'Wow, this is so fast. Let me delve in.'"

Mernar's manager asked him to write a portion of a system in Visual Basic. After the initial anxiety over the sight of a blank screen, he was able to draw on the Visual Basic course he'd completed two months before. "It wasn't the cleanest or the easiest program, but once I got started, all the training came back," he says.

Today the former maintenance programmer is a senior programmer/analyst who supports a critical financial planning and forecasting application in the company's Engineered Materials division. The application that Mernar designed and wrote in Visual Basic has been in production for five months and is going into its second development phase.

Mernar's journey down the client/server path illustrates the biggest challenge facing IS staffers whose companies announce a retooling — managing the change in their work processes and how they see themselves in the new environment.

"Management's expectations [of a retooling effort] are that once they define the models and provide training and education, people will be able to make the change. But they're finding, in general, that the old rules of thumb about people's ability to change are holding true," says Mary Silvadocka, senior manager and co-director of multiclient research at Ernst & Young's Center for Business Innovation in Boston. "A third make the change right away, a third are on a curve, and a third can never change."

Silvadocka, who headed up an IS leadership program last year called "Reskilling IS Professionals" with 20 IS managers and human resources specialists, says reshaping the IS professional's perspective is ultimately the driving force in any retooling effort.

For example, as a mainframe maintenance programmer, Mernar generally worked autonomously, whereas now he works in teams that include the Oracle database administrator, the network control group, the LAN administrator and others.

In spite of the challenges, IS managers say they would rather retool existing staff than hire new talent.

Three IS managers spoke with *Computerworld* about their retooling efforts and assessed how their staffs are making the transition (see next page). In each case, helping their staff adjust to the massive change has been part of their strategy. According to the reports, most IS staffs are managing but not without a few casualties along the way.

> "One interesting phenomenon is that companies are letting people self-select," says Mary Silvadocka at Ernst & Young. "They are using skills assessments, peer and customer ratings and performance evaluations to predict who will change and who won't. But in some organizations, once the vision becomes explicit, people who step up first had a similar vision all along and had already done things to develop those skills. From there, a natural selection process goes on."

RETOOLING efforts: The boss's perspective

Kathy Brittain White, vice president of IS and services, Engineered Materials division, Allied Signal, Inc., Morristown, N.J.

RETOOLING GOALS: The training was not so much about new technologies but about new attitudes. That's a more important piece. The staff must make the shift to understanding its role in working with customers.

STAFF EVALUATION: I was new at the time, so I assessed the personnel and talent via one-on-one interviews, read past performance reviews and looked at what each person was working on, his related experience, motivation and attitude.

FALLOUT: Some people were eliminated because they didn't have the attitude, desire or ability to make the transition. Some didn't want to. We ended up with 50% of the staff choosing to stay. Then we went after the best and the brightest in client/server — candidates who had been real hot shots. As we brought our existing staff into the new technologies, we assigned individuals to teams with these new, more-experienced people.

TRAINING: Technical courses in basic client/server concepts and technologies; classes focusing on how to effectively service customer requests; project management and estimating. Curriculum included off-site and in-house courses, seminars and industry conferences.

RESULTS SO FAR: We're two years into this, and 90% of our people are doing a very productive job. In some cases, people have had to go back for more training. For instance, some staffers understood the new tools and techniques but couldn't fully perform in their new roles. Sometimes we moved them out to new teams too early.

We had a lot of trouble with a few people on our customer service orientation. We just keep reinforcing that this is the most important thing in our culture now.

Jim Nisbet, vice president of IS, Monsanto Co., St. Louis

RETOOLING GOALS: With the technical training, we wanted to make the staffers comfortable and confident [so they would] be able to choose the best platform for the application. We were also changing our corporate IS group's model — training people as consultants and teaching them how to work more effectively with users. We started a change management initiative to get people [to look] for opportunities to make the business more competitive.

STAFF EVALUATION: Working with a change management specialist in one-on-one and group sessions, we created a personal development plan for everyone in the program. It includes technical training, communication skills, team building and anything else we think will benefit them.

FALLOUT: On the technical side, I've heard no complaints. Of the first 85 people who underwent change management training, a handful were not entirely happy with the program, but [no one] refused to do it. In the next two to three years, we will continue to identify people who need training, get it for them and get them certified in their functions. If they can't pass, they'll have to reconsider their roles or possibly leave if they can't meet the challenge.

TRAINING: Includes change management training for the 85-member corporate IS group, with operations and application development staff scheduled to follow; technical training in distributed systems and client/server technologies as well as Notes; soft skills training in interpersonal communication and team building.

RESULTS SO FAR: We just did a major reorganization of our whole IS group, and [it appears that] the group that went through change management training is better able to handle the change with less disruption.

Phil Kaufman, assistant vice president of IS training, Chubb & Son, Inc., Warren, N.J.

RETOOLING GOALS: To equip enough people with the mind-set and skills they need to produce the client/server systems our business needs. We wanted to make it possible for people to learn and get into new technologies even before the need hits their team or staff group.

STAFF EVALUATION: It was a gradual process. It hasn't been that structured on a large scale but more in terms of targeting one applications group at a time. So maybe there's a team of 12 people that needs new skills for a particular project, and we prep them for that. We promote a lot from within and have also increased our hiring of experienced people.

FALLOUT: We realized that for everyone, even people who look forward to it, change is disorienting. There are always some who resist new technologies. Some staffers were uncomfortable, but almost all were eager.

A bigger problem has been [that] the use of new technologies hasn't spread as quickly as the staff's need to get into it. There may be 5% to 10% of our people who are uncomfortable and may never make the transition.

TRAINING: A three-stage client/server transition training program is in place that moves staffers from conceptual knowledge to a more in-depth study to on-the-job immersion in the technology. At the highest level, the company periodically provides an on-site, three-day overview of all the technologies in place and how they fit together.

Most of the training is in-house, led by a staff of 10 trainers, but external training is offered in emerging technologies that are being considered for future use at the company.

RESULTS SO FAR: We [started] migrating to a client/server infrastructure in the summer of '93, which will be fully in place in North America by the spring. Of 600 to 700 application development people, only 15% or 20% haven't made some kind of shift. That's not to say it's been smooth or easy. They've taken a lot of bumps as individuals and in application development teams. It's hard work in a world that is so much less clear than what we've been accustomed. ■

Goff is a freelance writer in New York.

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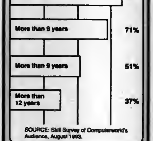

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SOURCE: Skill Survey of Computerworld's Audience, August 1993.

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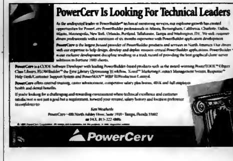

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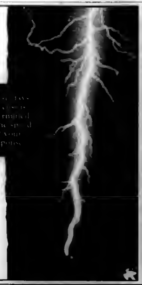

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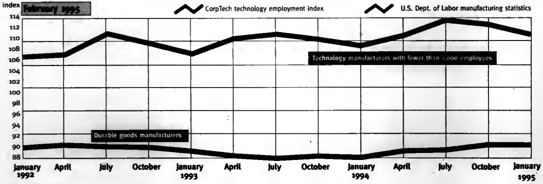

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There's more. You'll not only network with your peers, you'll also compare valuable notes with the very Information Systems educators who are preparing your future recruits for employment. Because top Information Systems educators from campuses nationwide will be simultaneously attending the second annual Worldwide Conference on Information Systems Education, you'll be able to attend special joint sessions that are specifically designed to build immediate, productive cooperation between industry and academia.

All of this takes place in June at the scenic Inverness Conference Center and Resort in Englewood, Colorado, a site specifically designed for this size and type of conference, complete with state-of-the-art media capabilities, a reputation for dining excellence and a wide array of recreational facilities.

KEYNOTE SPEAKERS

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TRACK 1: Survey Course on Recruiting Basics

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Gale Hering Vanna
HR Director
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TRACK 2: Career Options for Recruiting Professionals

How can you, the technical recruiter, develop professionally? In this session, you'll gain insight from a seasoned practitioner and HR expert on how you can grow and advance yourself in the recruiting and HR field

Alan Alper
Editor
Computerworld's
Client/Server
Journal

TRACK 3: Why Can't I Find the Skills I Need When I Need Them?

Advances in technology have a direct relationship with the amount of talent available to you. The newer the technology the fewer the experts available. In this session, learn about this timeless topic and how to assign realistic expectations to your recruiting efforts and resources.

William S. Swan, Ph.D.
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TRACK 4: Candidate Selection

Are you using research-proven methods and skills to enhance your interview and performance appraisal process? How can you apply behavioral interviewing techniques immediately? In this session, you'll learn about the "science behind the hiring process" from one of the field's leading experts.

TRACK 5: Sourcing Techniques

What are the latest developments in sourcing techniques such as networking, joining technical associations, using online job and resume databases, advertising, open houses, job opportunity hotlines, employee referral programs and more? This peer to peer session will focus on what's working, why it is and how to use the best sources to your best advantage.

TRACK 6: Corporate Hiring Issues

What does the hiring future hold with "the virtual" office? What is the most contemporary update on immigration law? What do you need to know about the Americans with Disabilities Act? This track will offer the latest information to keep you current in your daily efforts.

TRACK 7: Educator/Recruiter Summit

What's the contemporary view of I.S. education, especially as it relates to how recruiters must rely on the the I.S. talent supply that emerges every year from America's campuses? This summit with I.S. educators who will simultaneously be attending the Worldwide Conference on Information Systems Education (WISE) will focus with your discussions on how to maximize your college relations and cooperative education efforts.

Additional events:

The Recruitment Challenge

This highly interactive and fun half-day session will allow all educators and recruiters to participate in a real-world, team-building solution of a recruitment case study. Since this special session will occur on the last morning of the conference, aspects of previous sessions will be considered and applied in the case study. You won't want to miss this session, because an individual on the winning team will win a notebook computer compliments of Computerworld!

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Marketplace

The Big PICTURE

Video server technology may be getting more cost-effective, but experts suggest starting with a small, scalable system

By Lynn Haber

CSX Transportation, Inc., the oldest railroad in the U.S., is laying tracks on the multimedia line that other companies are sure to follow. The $8 billion Jacksonville, Fla., firm has implemented a networked video training application as a cost-effective approach to reach its 30,000-plus employees in 20 East Coast states.

Although the sophisticated networked video application is on schedule, the company sought help from a systems integrator to design and configure the extensive application.

"We put together a rather sophisticated system and needed help to select the right hardware, configure the video server as well as achieve integration with our existing network," says Dennis Gay, senior director of training at CSX.

Although the implementation of networked video applications is still in the early adoption phase among corporations, interest in applications such as training, performance support, interactive kiosks, video databases and World-Wide Web servers is picking up.

Oddly enough, however, the video server, a key element of a networked video application solution, seems to defy a clear definition at this time, according to industry players. Vendors indicate that a video server can be a hardware or software solution or a combination of both. Either way, a video server must provide synchronized video and audio data streams to multiple users in a timely manner.

A software solution controls the flow and distribution of the media stream, while a hardware solution tackles I/O bandwidth, storage and performance issues.

The actual video server box can be anything from a 486-based PC to a massively parallel processor, depending on the application. In the corporate environment, many companies are testing the waters for video applications using 486-based PCs with video stream software and low-cost disk arrays.

Video servers are often optimized 486- or Pentium-based PCs that are Extended Industry Standard Architecture-based with fast SCSI and a minimum of 1G to 2G bytes of storage, says Tom Tevlin, business development director at Digital Renaissance, a systems integrator in Toronto that specializes in networked video applications. "The total solution with software shouldn't run more than $10,000 to $15,000," he says.

At CSX, for example, each of the company's 36 video servers is a 486-based 66-MHz PC with a minimum of 8G bytes of memory and 32M bytes of RAM. Each server sits on its own 16M bit/sec. Token Ring LAN segment and serves between five and 10 users. "Our training application is a store-and-forward application. As we do more of the video-based applications, we'll upgrade to a Pentium processor," Gay says.

Market players

There are only a handful of vendors that play in the low-end video server market today (see story at right), but how an organization selects a product depends entirely on the application itself and other variables. These include the number of simultaneous users, quality of audio and video, user tolerance for latency in information delivered over the network, the nature of the application and the desired service. But whatever you do, start with a small system.

What can't be dismissed is network infrastructure. Rethinking the network is a must to reliably accommodate sending video streams (typically 1.5M bit/sec. per user). It can also ensure overall reliability of the LAN's performance by eliminating contention and performance issues.

Video server technology is just beginning to be cost-effective. Sufficient storage capacity — a key component of a well-designed video server — is still costly and is perhaps one of the key inhibitors to more pervasive acceptance of video technology in the corporate marketplace. ■

Haber is a freelance writer in Jamaica Plain, Mass

Players

Only the following handful of vendors play in the low-cost corporate video server market:

Starlight Networks, Inc.
Mountain View, Calif., (415) 967-2774

StarWorks, StarWare: Provides video storage management and video session and stream management functions for the reliable delivery of video over LANs. StarWorks server software runs on 486, Pentium and Sun Microsystems, Inc.'s SPARC-based servers.

Price: StarWorks begins at $4,495; StarWare is a Novell, Inc. NetWare Loadable Module and starts at $2,275.

The Network Connection
Alpharetta, Ga., (800) 327-4853

Cheetah video servers: A hardware solution that requires no proprietary video enabling software. The Cheetah platform is based on Microsoft Corp.'s Windows NT Server with dual or quad Pentium 90-MHz processors and asymmetric I/O processing capability.

Price: About $1,000 per stream or between $15,000 and $140,000 per system, depending on the number of video streams.

Silicon Graphics, Inc.
Mountain View, Calif., (415) 960-1980

Challenge video servers: Optimized configurations that handle more demanding video-based applications.

Price: Begins at $12,500.

Sun Microsystems, Inc.
Mountain View, Calif., (415) 960-1300

SPARCstation, SPARCserver 1000 and 2000: Sun has teamed with Starlight Networks for video server applications. Both the SPARCstation and SPARCserver 1000 and 2000 products serve video applications.

Price: SPARCstation begins at $12,195. SPARCserver 1000 begins at $54,300, and the 2000 begins at $124,795.

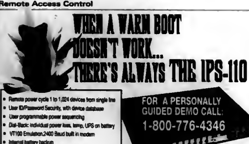
IBM
White Plains, N.Y., (914) 642-3000

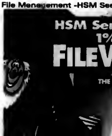
LAN Server Ultimedia: IBM's video solutions are software-based and enhance existing product capabilities to accommodate distributed multimedia support. IBM Ultimedia products include versions for OS/2, AS/400 and MVS.

Novell, Inc.
Orem, Utah, (801) 429-7000

NetWare Video: Novell video solutions are software-based and enhance existing product capabilities to accommodate distributed multimedia support.

Price: Between $1,100 and $2,975, depending on the number of users.





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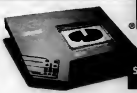

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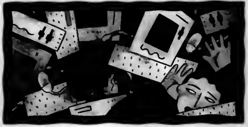

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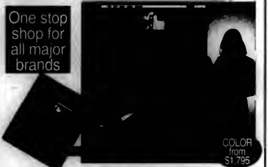

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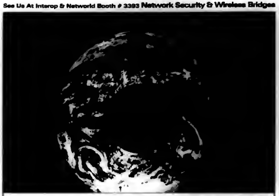

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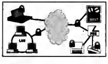

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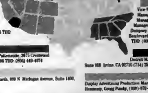

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Boston: Vice President/Larry Craven, Director of Publishing Services/Carolyn Novack, Sales Assistant/Heidi Broadley, 375 Cochituate Road, Box 9171 Framingham, MA 01701-9171 (508) 879-0700 FAX: (508) 879-0446

San Francisco: West Coast Director/Elaine R. Offenbach, Sales Associate/Nikki Wilson, 500 Airport Boulevard, Suite 400, Burlingame, CA 94010 (415) 347-0555 FAX: (415) 347-8312

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Associate Publisher: James Hussey, 375 Cochituate Rd., Box 9171 Framingham, MA 01701-9171 (508) 879-0700 FAX: (508) 872-2364

East: John Watts, 470 Totten Pond Rd., 5th Floor, Waltham, MA 02154, (508) 879-0700 FAX (617) 890-2069

West: Kaye Sharbrough, 500 Airport Boulevard, Suite 400, Burlingame, CA 94010 (415) 347-0555 FAX: (415) 347-8312

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Sales Manager/Michelle Reeves, **Northeast** Account Executive/Susan Cardona, **Central/Southeast** Account Executive/Kevin Gasper, **Western** Account Executive/Claude Garbarino, Marketing Communications Manager/Karen Lesko, Classified Solutions/Nancy Whittaker, 375 Cochituate Rd., Framingham, MA 01701-9171 (800) 343-6474 FAX: (508) 820-0041

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Vice President/Recruitment Advertising: John Corrigan, Marketing Director/Derek E. Hulitzky, 375 Cochituate Rd., Framingham, MA 01701-9171 (800) 343-6474

New England: Regional Manager/Nancy Percival, 375 Cochituate Rd., Framingham, MA 01701-9171 (800) 343-6474, Account Executive/Nancy Mack, (800) 343-6474

Mid-Atlantic: Regional Manager/Marty Finn, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090, Account Executive/Caryn Dlott, (800) 343-6474 TDD: (800) 208-0288

South-Atlantic: Regional Manager/Katie Kreps, 8304 Professional Hill Drive, Fairfax, VA 22031 (703) 573-4115, Sr. Account Executive/Pauline Smith (800) 343-6474

Midwest: Regional Manager/Pat Powers, 1011 East Touhy Avenue, Suite 550, Des Plaines, IL 60018 (708) 827-4433, Sr. Account Executive/Ellen Cross (800) 343-6474 TDD: (800) 227-9437

West: Regional Manager/Barbara Murphy, 2171 Campus Drive, Ste. 100, Irvine, CA 92715 (714) 250-0164, Sr. Account Executive/Christopher Glenn (800) 343-6474 TDD: (800) 203-5667

Computer Careers Online: Jay Savell, Account Executive, 375 Cochituate Rd., Framingham, MA 01701-9171 (800) 343-6474

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375 Cochituate Rd., Framingham, MA 01701-9171 (800) 343-6474

Account Manager/Norma Tamburrino, Mack Centre 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090

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Vice President/General Manager, Customer Information Division: Richard Mikita, Vice President Sales: John Carpenter, Sales Assistant: Jennifer Chan

East: Account Executive VAR Database, Carol Mullen, Database Representative Buyers Database, Linda Clinton, (508) 879-0700 FAX: (508) 879-0184

West: Account Executive VAR Database, Chris Jones, Database Representative Buyers Database, Gene Haas (415) 347-0555 FAX: (415) 347-8312

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President: Charles Coleman, Chief Operating Officer: Jaye Tyler, (508) 626-1700 FAX: (508) 626-0027, Internet: cts@delphi.com, CompuServe: 74603,2745

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Companies in this issue

Page number refers to page on which story begins

March 10 Stock Ticker

Gainers Losers

Percent

Gainers		Losers	
Telebit Corp.	27.2	Standard Microsystems Corp.	-15.2
Borland Int'l Inc.	26.7	Xircom	-14.9
Bolt, Beranek & Newman	23.2	Tseng Corp. (H)	-13.6
Brooktrout Technology (H)	21.0	Weitek	-13.3
Maxtor Corp.	20.3	Racotek Inc.	-11.8
Manugistics Group Inc.	17.4	Anacomp Inc.	-11.8
Optical Data Systems Inc.	16.1	Platinum Technology	-11.7
Sapiens Intl. Corp. N.V.	15.6	Penril DataComm Networks	-8.3

Dollar

Gainers		Losers	
Microsoft Corp. (H)	5.39	Standard Microsystems Corp.	-3.00
3 COM Corp. (H)	4.75	Platinum Technology	-2.63
PeopleSoft (H)	4.75	Xircom	-2.50
Legent Corp.	4.50	FORE Systems Inc.	-2.25
Intuit Inc.	4.38	Octel Communications Corp.	-1.75
Progress Software Corp.	4.38	Motorola Inc.	-1.75
Optical Data Systems Inc.	4.38	Lattice Semiconductor (H)	-1.63
Bolt, Beranek & Newman	4.13	Xerox Corp. (H)	1.50

Computer Associates International, Inc. and Texas Instruments, Inc. both fell last week after analysts downgraded their ratings. Dell Computer Corp. rose slightly after its rating was upgraded to a Buy

Drive makers aim for top spot

It has been nearly one year since PC disk drive makers pulled out of their slump [CW, July 18, 1994].

But while the top contenders have secured Wall Street's confidence for the long term, they are still vying for the lead spot in the disk drive market. Consequently, some analysts are recommending that short-term investors wait a bit longer before putting their money where their disks are.

According to a report by John McManus, an analyst at Needham & Co. in New York, companies such as **Conner Peripherals, Inc. (CNR)** and **Maxtor Corp. (MXTR)**, both in San Jose, Calif., have been trying to regain market share lost last year. The companies' method of aggressive price cutting to sell more units tends to have a negative effect on earnings and investors, the report stated.

John Dean, an analyst at Salomon Brothers, Inc. in New York, agreed that investors often perceive pricing strategies as irrational. "This is a long-term strategy. Investors look quarter to quarter," Dean said. And companies that take the most market share one quarter typically have the lowest growth margin the next because they have dropped their prices so low that they lose revenue, Dean explained.

But **Western Digital Corp. (WDC)** implemented a price-cutting strategy and came out on top. According to the report, the Irvine, Calif., firm's introduction of low-cost capacity has been balanced by its productive research and development effort and its lead in time to market for PC drives.

Dean agreed that Western Digital's management has separated the company from other disk drive makers, but he also stressed the value of companies that deliver what they promise. *—Erin Callaway*

The Big 6

Analysts say the disk drive market is healthier than ever, but investors should be cautious as companies spar for market share

Company	Ticker	Recommendation
Conner Peripherals, Inc.	(CNR)	Hold
Maxtor Corp.	(MXTR)	Hold
Micropolis Corp.	(MLIS)	Hold
Quantum Corp.	(QTNM)	Buy
Seagate Technology, Inc.	(SGAT)	Buy
Western Digital Corp.	(WDC)	Buy

Source: Salomon Brothers, Inc., New York

Exch	52-Week Range			Mar. 10 Price	Wk Net Change	Wk Pct Change
			Communications and Network Services			UP [illegible]
OTC	58.63	20.13	3COM Corp. (H)	58.63	4.75	8.8
NYS	44.38	36.25	Ameritech Corp	43.38	1.25	3.0
NYS	57.13	47.75	AT&T	52.00	1.13	2.2
OTC	19.75	12.75	Banyan Systems Inc.	17.50	0.50	2.9
OTC	61.88	18.63	Bay Networks Inc.	33.50	1.00	3.1
NYS	58.38	48.38	Bell Atlantic Corp.	52.50	0.63	1.2
NYS	63.50	50.50	BellSouth Corp	58.38	1.38	2.4
NYS	21.00	10.00	Bolt, Beranek & Newman	21.88	4.13	23.2
OTC	18.75	5.00	Brooktrout Technology (H)	18.75	3.25	21.0
NYS	52.88	33.06	Cabletron Systems	43.25	2.13	5.1
OTC	41.75	19.00	Centigram Communications	15.25	0.25	1.7
OTC	50.50	21.00	Chipcom Corp.	43.31	-0.69	-3.6
OTC	40.13	18.75	Cisco Systems Inc.	34.88	0.50	1.5
OTC	13.75	6.19	Compression Labs Inc	9.63	1.25	14.9
OTC	11.75	5.13	Computer Network Tech.	5.00	1.19	13.2
OTC	16.75	7.50	CrossComm	12.50	0.00	0.0
OTC	4.13	2.00	Data Switch Corp.	3.50	-0.06	-1.8
OTC	29.00	17.88	DSC Communications	36.75	0.50	1.6
OTC	38.25	10.00	FORE Systems Inc	34.00	-2.25	-6.1
NYS	35.88	10.00	General DataComm Inds.	19.25	-1.00	-4.8
NYS	34.38	29.50	GTE Corp.	33.88	1.00	3.0
NYS	99.75	77.00	ITT Corp	98.13	2.88	3.0
OTC	25.88	17.25	MCI Communications Corp.	20.63	0.94	4.8
OTC	13.75	1.00	MICOM Communications Corp	7.63	0.25	3.4
OTC	12.63	4.50	Microcom Inc.	10.75	0.00	0.0
OTC	10.50	4.00	Netrix Corp.	8.63	0.38	4.5
OTC	7.50	3.25	Network Computing Devices	5.50	0.25	4.8
NYS	27.75	7.50	Network Equipment Tech.	26.75	0.88	3.4
OTC	29.00	33.88	Network General (H)	28.38	1.25	4.6
OTC	8.38	5.06	Network Systems Corp.	5.25	-0.19	-3.4
NYS	63.38	26.50	Newbridge Networks Corp	32.50	-1.25	-3.7
NYS	37.75	26.00	Northern Telecom Ltd.	34.50	0.38	1.1
OTC	24.75	13.38	Novell Inc.	19.75	-0.13	-0.6
NYS	40.25	33.25	Nynex Corp.	39.38	0.50	1.3
OTC	28.50	15.50	Octel Communications Corp	21.00	-1.75	-7.7
OTC	37.50	12.00	Optical Data Systems Inc.	31.50	4.38	16.1
OTC	3.13	2.13	Penril DataComm Networks	2.75	-0.25	-8.3
OTC	29.38	10.00	PictureTel Corp (H)	27.88	0.38	1.3
OTC	8.13	2.13	Proteon Inc.	6.25	0.38	5.9
OTC	32.38	2.75	Racotek Inc.	5.63	-0.75	-11.8
OTC	30.50	3.50	Retix	4.63	-0.25	-5.1
NYS	23.75	12.44	Scientific Atlanta Inc	22.88	0.50	2.2
NYS	44.38	38.50	Southwestern Bell Corp	40.00	0.00	0.0
NYS	40.13	25.88	Sprint Corp	28.13	-0.25	-0.9
OTC	31.63	13.38	Standard Microsystems Corp	16.75	-3.00	-15.2
OTC	43.25	7.75	StrataCom Inc.	37.50	0.44	1.2
OTC	35.25	3.88	Telebit Corp.	7.31	1.56	27.2
OTC	61.50	24.00	US Robotics (H)	61.50	2.13	3.8
NYS	63.75	34.63	US West Inc	40.25	1.75	4.5
OTC	27.75	12.75	Xircom	14.25	-2.50	-14.9
OTC	28.00	8.00	Xylogics Inc.	21.00	1.00	5.0
			PCs and Workstations			UP [illegible]
OTC	7.50	3.50	Advanced Logic Research	6.13	-0.25	5.7
OTC	68.00	24.63	Apple Computer Inc.	38.75	-0.56	-1.4
OTC	24.25	10.50	AST Research Inc.	13.13	-0.25	-1.6
NYS	44.38	29.50	Compaq Computer Corp.	33.38	-1.13	-3.3
OTC	47.25	21.25	Dell Computer Corp	44.75	3.38	8.2
OTC	23.25	5.25	Gateway 2000 Inc	18.13	-0.13	-0.7
NYS	120.00	71.88	Hewlett Packard Co. (H)	114.50	2.88	2.5
NYS	33.88	19.75	Silicon Graphics	34.75	-0.50	-1.4
OTC	37.63	18.25	Sun Microsystems Inc.	32.88	1.50	4.8
NYS	52.38	30.25	Tandy Corp	45.63	0.88	2.0
OTC	13.13	2.38	Zeos International Ltd. (H)	13.50	1.38	11.0
			Large Systems			UP [illegible]
ASE	12.00	3.25	Amdahl Corp	10.75	0.13	1.2
NYS	8.88	4.38	Convex Computer	6.25	0.13	2.0
OTC	2.75	0.50	Cray Computer	1.00	-0.06	-5.9
NYS	33.75	14.63	Cray Research Inc.	17.75	0.50	2.9
NYS	12.00	6.63	Data General Corp	8.00	0.13	1.6
NYS	39.75	18.25	Digital Equipment Corp.	33.13	0.13	0.4
OTC	6.38	1.75	Encore Computer Corp.	2.50	0.08	3.2
OTC	18.25	6.50	Harris Computer Systems Corp	17.00	0.25	1.5
NYS	81.38	51.38	IBM (H)	81.38	3.25	4.2
OTC	17.25	5.00	NetFrame	6.38	0.25	3.8
OTC	13.75	3.63	Parallan Computer	3.94	0.44	8.0
OTC	16.00	5.38	Pyramid Technology	13.88	0.00	0.0
OTC	21.25	11.13	Sequent Computer Sys.	17.75	0.25	1.4
OTC	4.19	3.13	Sequoia Systems Inc.	3.94	0.19	4.3
NYS	39.88	22.88	Stratus Computer Inc	29.88	3.63	13.8
NYS	19.75	10.50	Tandem Computers Inc.	16.88	0.50	3.1
OTC	17.75	3.88	TriCord Systems	3.25	-0.13	-2.5
NYS	14.50	8.25	Unisys Corp	8.88	-0.25	-2.7
			Software			UP [illegible]
OTC	38.50	21.50	Adobe Systems Inc.	37.00	1.63	4.6
OTC	6.13	2.50	American Software Inc.	4.00	0.13	3.2
OTC	41.50	23.25	Autodesk Inc.	38.00	-0.38	-1.0
OTC	5.38	1.75	Bachman Info Systems	4.13	-0.13	-2.9
OTC	29.00	20.50	BGS Systems Inc.	28.00	1.38	5.2
OTC	70.50	40.25	BMC Software Inc.	65.50	1.50	2.3
OTC	30.50	15.31	Boole & Babbage	30.25	0.25	0.8
OTC	15.13	6.00	Borland Int'l Inc.	9.50	2.00	26.7
OTC	22.25	6.00	Brock Control Systems Inc.	6.38	0.13	2.0
OTC	4.00	1.75	CE Software	3.31	0.00	0.0
ASE	50.25	6.00	Cheyenne Software Inc.	36.00	0.00	0.0
OTC	21.88	9.75	Cognos Inc	29.25	-0.75	-2.4
NYS	61.63	27.38	Computer Associates (H)	62.13	1.63	2.7
NYS	6.13	2.50	Computervision Corp	5.88	0.25	4.4
OTC	49.25	31.25	Compuware Corp.	34.75	1.50	4.5
OTC	17.25	9.00	Comshare Inc.	16.75	0.13	0.8
OTC	16.75	10.13	Corel Corp	13.38	0.00	0.0
OTC	14.25	7.75	Dataware Technologies Inc.	13.00	3.25	30.6
OTC	6.75	2.25	Easel Corp	2.75	-0.13	-4.3
OTC	33.75	14.25	FileNet Corp.	32.50	1.50	4.8
OTC	11.50	5.00	4th Dimension	5.13	-0.13	-2.4
OTC	19.25	8.50	Frame Technology	10.13	1.88	11.5
OTC	35.25	11.50	FTP Software Inc	29.13	-0.38	-1.3
OTC	10.50	7.00	Group 1 Software	9.50	0.00	0.0
OTC	30.25	8.75	Gupta	11.50	1.00	9.5
OTC	10.25	4.63	Hogan Systems Inc.	5.88	-0.38	-6.0
OTC	45.50	19.00	IMRS	43.75	0.00	0.0
OTC	22.25	11.25	Information Resources	14.50	-0.75	-4.9
OTC	29.75	16.25	Informix Corp. (H)	38.00	1.50	-3.5
OTC	14.38	7.38	Intergraph Corp (H)	13.38	-0.38	-2.7
OTC	8.75	2.50	Interleaf Inc	5.50	0.63	12.8
OTC	18.25	8.63	Intersolv Inc.	15.13	0.75	5.2
OTC	73.25	27.00	Intuit Inc.	70.50	4.38	6.6
OTC	27.25	19.00	Legent Corp	34.00	4.50	15.3
OTC	86.50	29.25	Lotus Development	43.31	1.81	4.6
OTC	16.50	4.38	Magic Software Enterprises	3.38	0.13	2.4
OTC	14.75	6.00	Manugistics Group Inc.	13.50	1.00	17.4
OTC	51.00	14.75	MapInfo Corp. (H)	50.00	2.75	[illegible]
OTC	4.13	1.44	MathSoft	3.00	-0.25	-7.7
OTC	24.63	4.00	McAfee Associates	24.63	3.13	14.5
OTC	17.25	9.38	Mentor Graphics	13.63	0.75	5.8
OTC	20.00	11.25	Micro Focus	31.25	-0.88	-2.7
OTC	5.25	4.63	Micrografx Inc.	6.13	-0.50	-7.5
OTC	68.63	41.00	Microsoft Corp. (H)	68.50	5.39	8.5
OTC	65.00	11.25	NetManage Inc	56.50	3.50	6.5
OTC	38.00	17.50	Oracle Corp. (H)	32.63	0.25	0.8
OTC	42.75	21.50	Parametric Technology (H)	41.63	0.25	0.6
OTC	24.25	13.38	ParcPlace Systems Inc	16.25	-1.25	-7.1
OTC	62.75	13.00	PeopleSoft (H)	42.75	4.75	12.5
OTC	8.50	4.38	Phoenix Technologies	6.13	-0.50	-7.6
OTC	14.75	3.00	Platinum Software	7.75	-0.25	-3.1
OTC	25.25	11.00	Platinum Technology	19.75	-2.63	-11.7
OTC	52.63	27.00	Progress Software Corp	57.63	4.38	8.2
OTC	4.50	1.88	Quarterdeck Office Sys.	3.63	-0.31	-7.9
OTC	15.75	9.50	Rainbow Technologies Inc.	18.25	0.13	0.7
OTC	7.13	2.00	RasterOps	4.25	-0.25	-5.6
OTC	7.13	2.88	Ross Systems	4.25	-0.38	-8.1
OTC	15.25	0.50	Sapiens Intl. Corp. N.V.	3.25	0.44	15.6
OTC	28.88	9.75	Softkey International Inc. (H)	26.50	0.00	0.0
OTC	7.63	3.00	Software Publishing Corp	3.81	-0.06	-1.6
OTC	19.75	5.00	State of the Art (H)	18.13	0.00	0.0
NYS	38.38	25.00	Sterling Software Inc.	37.63	0.88	2.4
OTC	16.50	3.63	Struct. Dynamics Research	6.50	0.00	0.0
OTC	92.00	35.25	Sybase Inc.	44.88	2.13	5.0
OTC	22.63	9.88	Symantec Corp (H)	27.63	3.00	15.3
OTC	51.88	33.00	SynOptics (H)	51.38	0.63	5.7
OTC	25.00	10.63	System Software Assoc.	24.88	0.75	3.2
OTC	2.75	3.25	Tseng Corp. (H)	6.38	-1.00	-13.6
OTC	29.75	2.88	ViewLogic Systems	9.13	-0.38	-3.9
OTC	23.25	12.25	VMark Software Inc.	14.75	-0.50	-3.3
OTC	13.25	3.50	Walker Interactive Systems	6.94	-0.44	-5.9
OTC	60.00	29.25	Wall Data Inc.	55.13	3.00	5.8
			Semiconductors			UP [illegible]
NYS	35.00	22.25	Advanced Micro Devices (H)	33.88	3.75	12.4
NYS	26.25	34.38	Analog Devices Inc. (H)	25.75	0.13	0.5
OTC	37.63	39.25	Atmel Corp	34.00	1.06	2.0
OTC	8.88	3.63	Chips and Technologies	7.50	0.63	9.1
OTC	50.75	21.00	Cirrus Logic	37.00	1.25	5.0
NYS	29.88	13.88	Cypress Semiconductor Corp.	28.38	-0.50	-1.7
NYS	28.13	13.38	Dallas Semiconductor	36.75	0.63	9.9
OTC	33.50	14.75	Integrated Silicon Systems	29.38	1.13	4.0
OTC	82.75	56.00	Intel Corp. (H)	80.81	-0.06	-0.1
NYS	58.25	16.75	LSI Logic Corp	15.75	1.00	1.0
OTC	27.00	14.75	Lattice Semiconductor (H)	24.63	-1.63	-6.2
NYS	71.38	28.25	Micron Technology (H)	67.75	0.50	0.7
NYS	64.75	42.13	Motorola Inc.	58.50	-1.75	-3.0
NYS	23.00	14.38	National Semiconductor	17.75	0.13	0.7
OTC	25.38	6.75	Sierra Semiconductor	24.50	-0.25	-1.0
NYS	89.50	63.25	Texas Instruments	80.13	-2.25	-2.7
OTC	16.63	10.25	VLSI Technology (H)	15.88	0.50	3.3
OTC	8.75	1.78	Weitek	3.25	-0.50	-13.3
ASE	20.38	11.00	Western Digital Corp	16.63	0.13	0.8
OTC	70.25	38.00	Xilinx (H)	29.88	2.38	2.0
OTC	37.75	24.75	Zilog Inc.	35.88	2.13	6.3
			Peripherals and Subsystems			UP [illegible]
OTC	30.50	14.50	American Power Conversion	13.13	1.06	5.9
OTC	27.25	15.75	Banctec Inc	16.00	-1.25	-7.2
OTC	5.25	3.25	Cambex Corp	3.75	-0.13	-3.2
ASE	5.00	1.38	Cognitronics Corp	2.63	0.00	0.0
NYS	19.50	9.88	Conner Peripherals	10.50	0.63	6.4
OTC	24.00	9.75	Creative Technologies Inc	13.00	0.38	3.0
OTC	9.25	3.50	Data Race Inc.	7.13	0.50	7.5
ASE	7.63	4.13	Dataram Corp	5.00	0.13	2.4
NYS	24.00	12.50	EMC Corp	20.75	-0.19	-0.9
OTC	16.75	3.50	Emulex Corp. (H)	10.13	-0.13	-0.8
OTC	17.50	11.25	Evans & Sutherland	15.75	1.63	11.5
OTC	24.00	14.00	Exabyte	17.50	-0.13	-0.7
OTC	23.13	1.88	Intelligent Info. Systems	3.25	0.25	8.3
OTC	7.69	3.59	Iomega Corp. (H)	7.50	0.44	6.1
OTC	8.25	2.00	IPL Systems Inc.	4.13	0.25	9.0
OTC	29.50	17.00	Komag Inc.	29.00	3.81	15.1
OTC	8.63	2.63	Maxtor Corp	4.81	0.81	20.3
OTC	11.50	4.88	Micropolis Corp. (L)	5.50	-0.25	-4.4
OTC	20.25	9.25	Pinnacle Micro Inc	12.75	-0.13	-1.0
OTC	28.75	5.16	Printronix Inc	18.50	-0.75	-3.9
NYS	10.75	6.88	QMS Inc	6.88	-0.63	-8.3
OTC	39.25	13.63	Quantum Corp	14.50	0.00	0.0
OTC	18.25	7.38	Radius Inc.	10.25	0.50	5.1
NYS	14.13	6.38	Recognition International	7.13	0.38	5.6
OTC	7.00	4.13	Rexon Inc.	5.25	-0.13	-2.3
OTC	28.75	18.63	Seagate Technology	25.50	1.00	4.1
NYS	29.63	15.25	Storage Technology (L)	20.50	-0.50	-2.4
NYS	40.50	26.75	Tektronix Inc	32.13	-0.88	-2.7
NYS	113.88	90.63	Xerox Corp. (H)	111.63	1.50	-1.9
			Services			UP [illegible]
OTC	21.00	12.91	American Mgmt. Systems (H)	19.38	1.00	-4.9
NYS	4.25	1.75	Anacomp Inc	1.88	-0.25	-11.8
OTC	21.75	14.50	Analysts Int'l.	21.00	0.75	3.7
NYS	62.88	47.63	Auto Data Processing	62.88	1.63	2.7
OTC	50.75	14.00	Cambridge Tech. Partners	50.75	3.25	4.2
NYS	32.13	20.50	Ceridian Corp	32.13	1.25	4.0
NYS	28.13	17.75	Comdisco Inc.	25.50	0.38	1.5
OTC	18.00	8.25	Computer Horizons	16.00	3.75	31.6
NYS	52.63	35.13	Computer Sciences	49.75	0.00	0.0
NYS	19.50	7.00	Computer Task Group	10.13	0.50	5.2
NYS	22.25	8.75	CompUSA Inc	10.88	-0.75	-3.8
OTC	13.38	5.38	Control Data Systems Inc.	6.88	0.00	0.0
OTC	12.13	6.13	Egghead Discount Software	9.63	-0.38	-3.8
NYS	40.13	32.50	General Motors E (EDS)	40.00	1.00	2.6
OTC	39.50	6.88	Inacom Corp	9.63	-0.06	-0.7
OTC	27.13	7.50	Intelligent Electronics	9.94	0.06	0.6
OTC	22.50	4.75	Merisel (L)	5.13	-0.25	-4.7
OTC	32.50	5.00	Microage Inc. (L)	9.25	-0.25	-2.6
OTC	42.00	30.50	Paychex	40.94	0.69	3.7
NYS	47.75	25.75	Policy Management Sys.	44.13	-0.25	-0.6
NYS	28.25	15.75	Reynolds and Reynolds	26.88	-0.38	-1.4
OTC	24.75	16.75	SEI Corp	19.88	0.63	3.3
OTC	27.88	22.33	Shared Medical Systems	35.00	0.63	1.8
OTC	6.13	4.00	SHL Systemhouse	6.25	0.13	2.0
OTC	31.50	9.25	Software Spectrum Inc.	16.25	-1.25	-6.9
OTC	43.75	31.50	Sungard Data Systems (H)	43.00	3.25	5.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Rdb makeover

CONTINUED FROM COVER 1

dows NT.

- Porting Oracle's Cooperative Development Environment 2 tools to Rdb.
- Integrating Rdb with Oracle's SQLNet connectivity gateway.

Also under discussion are possible tweaks to Rdb's implementation of SQL that would enable it to understand the nonstandard features and other extensions used in Oracle's PL/SQL, confirmed Beatriz Infante, vice president of Oracle's Open Systems Division.

Oracle announced its intention to buy Rdb and related database products from Digital six months ago; the $108 million deal was completed in December.

Jeffrey Jalbert, an analyst at JCC Consulting, Inc. in Granville, Ohio, said Oracle's latest moves are reassuring. In fact, Rdb on NT "has me salivating," he said. Such a port would mean an instant jump in the number of report writers, development tools and other third-party products available to Rdb users.

Indeed, a lack of support products for Rdb is one problem Oracle should address, according to Gina Dominique, a database analyst at Bank of New York Co.'s Trading Systems Group in New York. "We'd love to see them take [Rdb] to the level of an Oracle database in that way," she said, referring to the several thousand third-party packages that support the Oracle database.

Though Rdb is technologically a competitive database, customers realize it is not strategic for Oracle, said Rich Finkelstein, an analyst at Performance Computing in Chicago. "They are planning for eventual migration," he said.

Pricing conflict

And pricing questions could drive some Rdb users away, users and analysts said. Despite grand technology plans, Oracle must deal with an Rdb customer base fearful of price hikes under Oracle's ownership.

Longtime Rdb users are accustomed to a "free" database. Digital bundled Rdb with its VMS operating system, so the cost of the database was hidden in VMS pricing. The same was true for Rdb support. The deal also included free Rdb runtimes.

Oracle, on the other hand, now charges separately for Rdb and related services, using a price structure "comparable to [that of] Oracle's own products," Infante said.

Prices for the Oracle database range from $199 per user for the low-end Oracle Workgroup Server to several hundred thousand dollars for an enterprise-level version.

"So there's a little bit of a surprise when [users] see it broken out like that on a sheet of paper," Infante said, adding that "there has been a favorable response from customers."

However, some Rdb sites have not yet had to negotiate new deals with Oracle. Crane Plastics Co. in Columbus, Ohio, bought a bundled network applications support license, which includes Rdb, from Digital in the past year.

If the company must buy a separate Rdb license from Oracle when its maintenance deal with Digital runs out in October, "we'll shop around to see what other databases we can move to," said John Vottero, Crane's MIS director. "It doesn't seem fair to me. It sounds like I'm being gouged by Oracle because Digital made a bad deal."

Desktop object modeler

CONTINUED FROM COVER 1

grandiose mainframe-oriented architecture that collapsed several years ago as customers began moving more of their development work to PCs.

In keeping with that trend, IBM's new approach is centered squarely on the desktop as the main development platform. But through its System Object Model technology for sharing objects, tools such as ObjChart will be able to develop applications that can run on IBM's full line of systems, including mainframes.

IBM hopes to give ObjChart a multiple-language cachet by supporting both C++ and Smalltalk in the first release, said Eric Bush, manager of enterprisewide application development strategy at IBM. Later it will provide support for an upcoming object-based Cobol and a planned Visual Basic knockoff, he added.

Several Guide attendees said the ability to automatically execute a finished application directly from a design model — rather than having to build and assemble classes of objects themselves — could shorten development cycles and reduce the amount of object-oriented training needed in their shops.

"I like the concept very much, and I'm pleased that IBM is taking some leadership here," said Linda Mainord, president of Guide and director of application services for the Memphis city schools. She added, however, that her interest in ObjChart "depends on what actually comes out."

William Keen, a supervisor at the information services development division for Hennepin County in Minnesota, said he hopes ObjChart's code generator would make it more feasible to switch existing applications to object technology. "We don't have the time to convert all that stuff" manually, he said. "If IBM can put that together, then they've probably got something."

The promised support for multiple languages also is appealing, said James Funk, data administration manager at S. C. Johnson & Son, Inc. in Racine, Wis. Another potential benefit is the ability to "somewhat constrict the different development skills we need to have in the company" by generating code automatically, Funk added.

ObjChart sounds "pretty impressive," said Mitch Kramer, a consulting editor at Patricia Seybold Group in Boston. Object modelers typically generate only application prototypes or header files for creating object classes, he said. "That's a long way from a finished application" such as the one IBM is promising.

However, Chet Geschickter, an analyst at Hurwitz Consulting Group, Inc. in Watertown, Mass., said IBM needs to ensure that application code changes will be reflected back to the model. Otherwise, the application could "kind of drift out of control" and pose maintenance problems, he pointed out.

IBM is looking at providing some level of bidirectional "pointers" to keep design models and applications in sync, "but we haven't made a call yet on whether that's a good or bad thing to do," Bush said. "The best approach [for users] is not to change the code under the model, but people often do."

ObjChart prototypes are running in IBM's laboratories, and the product should be ready to ship late this year or early in 1996, Bush said. While marketing plans have not been set yet, the company may merge the product into its existing VisualAge development and code-building tool, essentially swapping in a different engine but keeping a similar look and feel, he added.

Under fire

AD/Cycle may be gone, but it is not forgotten. After his Guide conference address, Steve Mills, general manager of IBM's Software Solutions division, was grilled by users on why they should put any more faith in its new object-based and PC-oriented development technology than the mainframe-centric AD/Cycle. "We know what the problems were [with AD/Cycle], but customers ought to be somewhat skeptical," Mills said.

Visual Basic

CONTINUED FROM COVER 1

the software solutions division at IBM. It will run on OS/2 and Macintosh systems and the Windows platforms that Microsoft supports, he added.

The knockoff will hew closely to Microsoft's design and should be able to support all third-party controls and components developed for Visual Basic, said Eric Bush, manager of enterprisewide application development strategy at IBM. Despite planned support for OS/2 and Macintosh platforms, "this is targeted right at the Microsoft client base," he said.

The computer giant claimed its product was designed to provide better application scaling than Microsoft's primarily desktop tool does. IBM also is building a higher level of object development support into its version than Microsoft offers in its current release, Visual Basic 3.0, officials said.

Take a peek

IBM's plans hold enough promise to warrant a look when the software becomes available, said David Headley, senior software engineer at Polaroid Corp. in Cambridge, Mass. Polaroid is a heavy user of Visual Basic, "but we're always on the prowl for other tools," he said.

"If IBM's is multiplatform, people would be crazy not to look at it," said Headley, who develops for OS/2 and Windows. "IBM doesn't have the best reputation in PC development tools, but this could be a very interesting thing if it has Visual Basic's ease of use and robustness or more robustness."

Being able to write Visual Basic applications for OS/2 "would be a benefit" if IBM's version can actually support the wide range of add-on tools developed for the language, agreed David DuPre, an associate systems programmer at Provident Life & Accident Insurance Co. in Chattanooga, Tenn. "Visual Basic by itself does not really have much value," he added.

Ken Krell, senior manager consultant at the Food and Drug Administration's Center for Medical Devices and Radiological Health in Rockville, Md., also said he would be willing to give IBM's version a try "as long as we come up with the same executable" and can run third-party controls.

The Visual Basic plan adds another facet to IBM's roster of object-based visual development tools, which already includes a Smalltalk product and beta-test releases of C++ and Cobol implementations. The latter two products are also scheduled to ship this summer.

"IBM obviously wants to provide as broad a base of support as it can for the languages and tools that its customers use," noted James Keithley, former Guide president. "This is not a monolithic world anymore."

An easy-to-use language such as Visual Basic could shorten the learning curve associated with visual and object-based programming for Cobol-oriented mainframe shops, said James Funk, data administration manager at S. C. Johnson & Son, Inc. in Racine, Wis. "But then you have to be able to get to the enterprise. And doing enterprise development isn't a simple thing."

Possibilities abound

IBM hopes to make that feasible with its plan to "kind of match [Microsoft] at the low end and then scale up into our traditional customer base," Bush said. "The intent is that customers should be able to ride the Visual Basic thing all the way up."

But some key questions remained unanswered last week. While IBM eventually will go beyond "skinny servers," MVS mainframe support probably will not be in the first release, an official said. It also was unclear whether IBM's product will support 32-bit Windows or the next generation of Visual Basic controls based on Microsoft's Object Linking and Embedding (OLE) technology.

Visual Basic 4.0, which is expected to ship at about the same time as the delayed Windows 95 operating system, will be a 32-bit implementation with OLE support and more object-oriented features. However, analysts said its object capabilities are still expected to be relatively limited.

A touch of *class* on your desk?

Laserperfect, Inc. has introduced Picasso Distinctions, colorful marbled casings for PCs, keyboards and mice that come in such patterns as Terra Cotta, Tiffany Rose and Danube Blue. The Los Angeles firm said it is talking with AST Research, Inc. about the possibility of AST equipping its models with the designer casings.

Searching the database of space

With the help of $100,000 worth of computer memory chips donated by Micron Technology, Inc., a Billion Channel Extraterrestrial Assay (BETA) will search the heavens this year for signs of intelligent life in outer space. The project is run by The Planetary Society, which has operated an 8.4 million-channel system since 1985. The society was founded by scientist Carl Sagan to support space exploration and the search for extraterrestrial life. Supporters of the group, which can be contacted at tps.sl@genie.geis.com, include film director Steven Spielberg.

How to contact *Computerworld* editors:

	Phone:	**Fax:**
Main office, Framingham, Mass.	(508) 879-0700	(508) 875-8931
24-hour tip line	(508) 820-8555	
Mid-Atlantic bureau, Rochelle Park, N.J.	(201) 587-0090	(201) 712-1808
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Inside Lines

Pssst, how about a nice old 486?

With its introduction of a vast array of new corporate PCs last week, Compaq will have an increasingly difficult time moving inventory of rapidly aging low-end 486-based systems, sources said last week. The company is supposedly having a particularly tough time pushing systems based on chips from Advanced Micro Devices and is shipping most of them to Middle Eastern and Far Eastern countries and Latin America. Compaq last week said AMD-based systems continue to sell briskly in the U.S.

Then again, they like blood pudding, too

Hoping to make mainframes more warm and fuzzy, some at IBM have taken to calling them "heritage" rather than "legacy" systems. While the dictionary does not make much distinction between the words, legacy "seems to mean that something's dead or dying," said Jim Porell, a senior technical staffer at IBM's System/390 division. He added that British customers "particularly like" the heritage concept. But, of course.

Win some, lose some, settle some

Oracle recently settled out of court an 18-month-old wrongful firing suit filed by a former marketing staffer and girlfriend of CEO Larry Ellison. Adelyn Lee sued Oracle, Ellison and her immediate supervisor, Craig Ramsey, in October 1993, alleging she was fired for ending her relationship with Ellison, according to San Mateo County Superior Court documents. The case was scheduled for trial last month — on Valentine's Day, no less — but was withdrawn after three settlement conferences among the parties. Oracle has promised to give Lee $100,000, and Lee and Ellison also signed a document saying that the case "arose from a misunderstanding in their personal relationship."

Feeding the mouths that bite you

IBM's open systems adapter technology, which connects LANs directly to mainframes, is being extended to the storage realm in a way sure to please competing storage vendors. In the second half of this year, the company expects to field a board with a built-in Escon adapter that will allow both IBM and non-IBM storage devices to plug right in to a piece of big iron. Despite the competitive implications, IBM's storage unit is said to be working side-by-side with its mainframe division on the project.

Anything you can do, I can do better

Hewlett-Packard and Silicon Graphics fought a news release war late last week, each claiming to be among the first to run IBM's CATIA computer-aided design program on their hardware. Turns out that HP/UX Unix is officially the first non-IBM port of CATIA, previously available only on mainframes and RS/6000s. HP has set pricing for its March delivery — about $5,000 per seat — while SGI isn't ready to provide pricing because its port is months away.

These memories aren't so precious

Steve Mills, general manager of IBM's Software Solutions division, wound up his keynote speech at last week's Guide user group conference in Reno, Nev., by opening up the floor for questions. No takers. "No one wants to ask a question about AD/Cycle?" Mills wondered aloud after a few moments of awkward silence. The reference to IBM's failed mainframe-centric development environment spurred some members of the audience to life, and Mills got to spend the next few minutes reliving the less-than-glorious past. Perhaps some things are best left unspoken.

And now for something from the weird.net category. Seems that by dialing (800) 959-4874, one can listen to "Wow It's Hot." No, it's not what you think. The MCI line features nine sounds meant to evoke images of summertime warmth — tropical birds, people playing golf, even a baseball game in action. But if you're simply in the mood to pass along news items or tips to Computerworld, call our 24-hour voice-mail tip line instead at (508) 820-8555 or our toll-free number at (800) 343-6474. News Editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at mjohnson@cw.com.

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